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Doers and Ditchers

IN AN editorial a few months ago I ventured the assertion that no real innovation ever originated within the organized constitution of any science or craft; it has always come from some individual, or non-conforming group of individuals, and pushed its way in the teeth of organized opposition. The Chicago *American*, in a recent excellent editorial under the title with which I have headed this article, further elaborates this psychology of progressiveness and conservatism.

"There are just two kinds of people in the world," says the *American*, "that advance or hamper progress, the doers and the ditchers. Whatever the doers, in their enthusiasm, conceive and suggest, the ditchers are bound to oppose and to wreck, if they can. The majority of us are simply neuters in this war of progress; our indifference is the battle-ground for the doers and the ditchers. We have the votes, and according to how they sway us so goes the world. Because finding fault is so much easier than working, and sitting still so much easier than hurrying, the ditchers are always in evidence."

The same thing is true in the more limited world of medicine as in the larger, outer world. And the ditchers are almost always found among those in constituted authority, representing established interests and crystallized traditions. There seems to be something about "office" that immediately converts a man into a "standpatter." No sooner is he vested with a little brief authority than he begins, like the Irishman with the shillalagh, to watch with fine impartiality and scorn of discrimination for heads to hit. As soon as one appears above the sky-line, "There's a hid—it must be Tim Maloney's." Whack! The club descends, the head disappears with a hollow sound, and the owner of the stick shoulders it with a complacent grin and watches for another crown.

It takes an almost superhuman persistency to keep poking your head above the horizon until you wear out the man with the shillalagh and persuade him that you really have something to say. And when at last he does realize it, and grudgingly allows you to come into the landscape, then he usually trots you around and exhibits you to an admiring public as his personal discovery—"Wisha! Wasn't Oi the furrst to see his hid, whativver?"

Yes; I repeat my assertion that no worthwhile contribution to knowledge or practice has ever been flashed upon the world in the dazzling glare of authority, and welcomed

open-armed by the constituted representatives of medicine. Before it receives authoritative endorsement it has to be pushed through the discouraging, uninteresting, monotonous, tedious process of breaking down the barriers, in which there is not much glory, not much appreciation. And, as our friend the *American* says, "It has to be done if we are going to get anywhere. It has to be done in every project in the world, from the founding of an empire to the making of a loaf of bread. The picturesque moment in these two enterprises is the coronation of the emperor and the lifting of the loaf from the oven; but long before these culminations, there was the dreary work of inspiring faith and mixing the dough."

Perhaps the ditcher's function, though irritating and discouraging, is a wholesome check and corrective. Possibly he plays a really useful part in progress, after all. Let us hope he does. But let us bear in mind that, at the very best, it is a negative part. For my own part, my blood is red, and I sympathize with the man who does things.

We must have a weak spot or two in a character before we can love it much. People that do not laugh or cry, or take more of anything than is good for them, or use anything but dictionary words, are admirable subjects for biographies. But we don't care most for those flat pattern flowers that press best in the herbarium.—Oliver Wendell Holmes.

NARCOTIC LEGISLATION—A SECOND-HAND EDITORIAL.

We may have to apologize to our readers for printing so much about the Harrison Antinarcotic Bill. The subject is one of such extreme importance that we pray we may be forgiven if we trespass too much upon your good nature. However, we urge you to read this editorial very carefully. It is one which you cannot possibly afford to overlook, even though it is to a considerable degree a "second-hand" editorial.

No doubt every reader of CLINICAL MEDICINE believes that by this time he fully understands the meaning of the Federal Antinarcotic Law going into effect on March 1. However, it isn't wise to be too sure. We thought we understood the law perfectly. Now, it seems, we do not. As an illustration of the difficulties presented we ask you to read very carefully, very thoughtfully, the following quotation from Section 2 of the law:

Nothing contained in this section shall apply (a) to the dispensing or distribution of any of the aforesaid drugs to a patient by a physician, dentist, or veterinary surgeon registered under the Act in the course of his professional practice only; *Provided*, That such physician, dentist, or veterinary surgeon shall keep a record of all such drugs dispensed or distributed, showing the amount dispensed or distributed, the date, and the name and address of the patient to whom such drugs are dispensed or distributed, *except such as may be dispensed or distributed to a patient upon whom such physician, dentist or veterinary surgeon shall personally attend;* and such record shall be kept for a period of two years from the date of dispensing or distributing such drugs, subject to inspection, as provided in this Act.

We have italicized a few words in the preceding so as to bring them particularly to the attention of the reader. Now, Doctor, are you sure that you understand this? Perfectly sure? Read it over again, very carefully this time. *Now* are you sure?

Nevertheless, Doctor, I fear you are mistaken. This portion of the law *seems* perfectly clear and transparent, and I do not believe that one doctor in a thousand would doubt that the meaning was this: that any physician personally in attendance upon a patient, in his home, his office, his hospital, or elsewhere, would be exempt from the provision requiring him to keep records of narcotic drugs dispensed. However, there seems to be another opinion, and since that opinion is expressed by the Commissioner of Internal Revenue, we shall of course defer to it. This opinion is published, as a letter, in the body of an editorial appearing in *The N. A. R. D. Journal*, the organ of the National Association of Retail Druggists. Please read the following extract from this editorial very carefully:

"A pertinent example of matters not definitely covered in the law or the official regulations, is an official communication from the office of the Commissioner of Internal Revenue, in which it is definitely decided that the doctor who dispenses narcotics in his office must keep a record of each transaction in which narcotics are disposed of. This ruling, which bears out our previous interpretation of the regulations, was uttered at the request of the Smith, Kline & French Company, of Philadelphia, to whom we are indebted for the opportunity of making it public. The official communication follows:

"Referring to your letter of January 25th, in which you call attention to an apparent contradiction in section 2, paragraph 'a' of the antinarcotic law, which relates to physicians' keeping a record of drugs dispensed 'except such as may be dispensed or distributed to a patient upon whom such physician, dentist or veterinary surgeon shall personally attend,' I beg to advise you that this office holds that a physician, dentist, or veterinarian must actually be absent from his office and in personal attendance on a patient in order to come within

the exemption of this section. In other words, *a physician, dentist, or veterinarian must keep a record of all drugs covered by the provisions of this law sold, bartered, exchanged, or given away in his office or place of business.*

"This ruling is a common sense one. It marks the victory of the National Association of Retail Druggists in its fight to restrict the dispensing doctor as a distributor of narcotics. It is the one regulation of the nefarious traffic, that druggists, sociologists, jurists, police, everybody with the exception of the dope-dealing doctor, has long known, and declared, to be most necessary for the assistance of local officials in their fight against the drug evil." —*N. A. R. D. Journal.*

The clear meaning of this is, that every physician dispensing any narcotic drug in his own office must keep a record of such dispensing, said record showing the amount of the narcotic dispensed, the date, and the name and address of the patient to whom the drug is dispensed. This requirement will affect not only the general practitioner of medicine, but dentists, veterinarians, eye, ear, nose and throat, and other specialists—in fact, every practitioner using any of the narcotic drugs for any purpose whatsoever in his own office or place of business. Plainly, if his place of business is a hospital, a record must be made of all narcotic drugs dispensed in said hospital.

The oculist, who in his office dispenses three or four drops of a 2 percent cocaine solution will, according to this ruling, be compelled to compute the quantity of cocaine dispensed therein and keep a record thereof. The same is true of the dentist who uses cocaine to alleviate pain in extracting a tooth; also the same is true of the laryngologist, or the surgeon performing a minor operation.

According to this ruling, furthermore, if you, Doctor, are called across the hallway into the office of Jones, the lawyer, to put a drop of cocaine in his eye before removing a foreign body, or to give him a few diarrhea tablets containing opium, you will *not* be compelled to keep a record of the narcotics dispensed; if, however, Jones comes from his office into yours, then a record *will* be required. You can follow a man out to the sidewalk and give him a shot of morphine without making a record; but if the same man follows you back into your office and the shot is administered, then a record must be kept.

We have no further comment to make upon this ruling. We simply believe it to be our duty to bring the matter to the attention of the medical profession for such action as it may think desirable.

It should be understood, of course, that this ruling is not the law itself, but the Commissioner's interpretation of the law. He may be wrong in this interpretation—personally we believe he is. However, it is the duty of every physician to conform, until some decision has been arrived at, in the courts or elsewhere, relative to the exact meaning of the law itself. And it is a good time to be thinking over this whole legislative situation.

O chime of sweet Saint Charity,
Peal soon that Easter morn
When Christ for all shall risen be,
And in all hearts new-born!
That Pentecost when utterance clear
To all men shall be given,
When all shall say My Brother here,
And hear My Son in heaven!
—James Russell Lowell.

DRONES AND DOCTORS WITHOUT SPUNK

I have before me a list of the lot-owners in a summer resort, forty in number. Out of these, four are denominated drones. Why? Because they alone have done and contemplate doing nothing whatever for the advancement of the community. The rest have built cottages or have planned them for the next season; they come there and take part in the life, contributing their share toward the gaiety and the general advancement. These particular four hold their lots vacant, waiting until the push and enterprise of others may increase the value of their holdings. They are of no use and a drawback to the place.

I am afraid some of my colleagues might with equal justice be termed drones in our profession. They never attend society meetings, never write a paper or make an address; never let out to their colleagues any of the wisdom they have acquired in their practice. They do not support the medical journals with their subscriptions; they buy no new books; they practice on the slender store of information they brought from college long years ago, and never seek to replenish their supply or take part in the swift advances made in every department of medicine. Truly, they are drones.

No? You don't like to be so classed? Well, tell us, then, in what way is the medical profession, and through it humanity, the better for your being?

True, you have done honestly and faithfully the work of practice in your community—but, have you learned nothing for yourself

in these past years? Have you nothing gathered from this rich opportunity that should not be allowed to perish with you? Can you not help the rest a bit, in return for the many things you have learned from others?

The ancient ideal of the medical guild was, that the knowledge of each was not his own personal property, but belonged to the whole body of physicians. If every man jealously hoarded his discoveries, the art and science would have been impossible; for, no matter how extensive the experiences and how stupendous the brain-powers of any one individual, these are as nothing beside the collective acquisitions of the whole profession. So, it was held dishonorable for the physician to impart to the laity the secrets of the guild; and equally so for him to refrain from acquainting his brethren with the things he had learned.

The earliest doctors were priests at the temples of the gods; and priests we are today; for, into our hands are entrusted the means of saving human lives. Priests we should consider ourselves—priests of the most divine order. And there is not a trace of superstition in such a belief. The man who feels the sense of trust reposed in him is a safe man to deal with. Feeling this obligation, he will also be anxious to perfect himself in the means of fulfilling it.

The worst thing I find about some of my colleagues is, that they allow themselves to become encrusted. They get into ruts and stay there; they do not try to improve their opportunities and themselves. Just look at it—

The old doctor is feeling the competition of the young doctor. The latter has returned from college with all the newer ways and methods; there is the lure of the novel, the new, the hitherto unheard-of; and people run to him. There is a certainty about these laboratory methods that appeals most of all to the old doctor, and he gets to feel rather blue over the situation. The young doctor is full of confidence, for he is modern, up to date!

Well, Old Doctor, what are you going to do about it? Lie down and let the other man have the field? Give up? Let yourself be pushed out and down? Or have you still enough red blood in your old arteries to make a fight not unwelcome? Is there still some gray matter in your skull that is not worn out—some elastic muscular fibers that are not overwhelmed by the connective-tissue hyperplasia?

Realize, Old Man, what advantages lie in your experience. Here is a case: A woman comes in with a cough—lasted a year—worse at night—no loss of strength or of weight. Microscope finds a few tubercle bacilli in the sputum. Now, shall we make our diagnosis and prognosis on the physical condition, supported by exploration of the chest; or, on the possibly chance presence of a few bacilli? I am rather inclined to think that the old doctor would rest upon the former; the young doctor, on the latter.

More important is the thought that the older man may so easily add to his own priceless store about all that the younger man has acquired. A few books and a visit to the schools, and, with his own knowledge as a basis, he can get far more benefit than can the inexperienced youngster.

I have said this before; and been cussed by some because they read into my words a slur against the elder men. Really, my only fault finding with them is, that they allow themselves to be old, in the sense of neglecting to take active steps against being pushed into the background. Youth has little chance when pitted against wise and active age.

How sweet and gracious, even in common speech,
Is that fine sense which men call Courtesy.
Wholesome as air, and genial as the light,
Welcome in every clime as breath of flowers,
It transmutes aliens into trusting friends,
And gives its owner passport round the globe.
—James T. Fields.

THE EDUCATIVE VALUE OF PAIN

Of all the far-fetched arguments advanced in various quarters against the twilight sleep, the smug, complacent "moral" argument solely affirming the educative value of pain "gets my goat," as the street-urchin expressively puts it. I declare, I don't know whether to take this objection seriously or not. Coming from the medical man, it sounds uncommonly like the last refuge of a cowardly mind that has no genuine argument left.

It is significant that this plea for the usefulness of pain comes entirely from the male and is directed wholly to the pangs of childbirth. Why, pray, this peculiar virtue in suffering in this particular instance? From the strictest viewpoint of philosophy and race culture, I suppose it can be shown that *all* suffering is salutary; first, because all suffering is, directly or indirectly, the penalty of violation of law, and, secondly, because it

subserves the evolutional principle of the survival of the fittest. Upon this assumption, I suppose, an academic argument might be made against any and all interference with the natural outworking of the penal and evolutional purposes of pain.

Perhaps, if pain and suffering had been the exclusive experience of the female sex and the means of interference the exclusive possession of the male, this complacent philosophy would have continued to prevail in respect of all suffering; for it is easy to be complacent where somebody else is concerned. But, fortunately for humanity, man shared most of the forms of pain in common with woman, and his own instinctive shrinking from pain (which every impartial observer agrees is much more than that of woman) outweighed his high philosophy and enabled him to compromise with his philosophic conscience to the extent of devising ways and means of evading pain—in which he very kindly has permitted women to share with him.

What is sauce for the goose is sauce for the gander. If pain is a useful and salutary thing, why interfere with it at all? The worse the pain, the more useful and salutary it must be. A toothache must be an invaluable educative experience. Yet, we venture the assertion that the very men who prate so glibly about the salutary influence of the pains of labor, run to the chloral-and-camphor bottle whenever their molar growls, just as promptly and shamelessly as any ordinary mortal. Nobody, so far as we have observed, is advocating a return to the old practice of amputating a leg without administering an anesthetic or, in fact, is suggesting the abolition of anesthesia in operative surgery at all. Still, if the argument of the virtue of pain has any validity at all, it is difficult to see why it does not apply to surgical operations or why it should be supposed to have a peculiar, mystic virtue in the case of childbirth.

The plea only has to be extended to its extreme reach in order to expose its absurdity. If physical pain has a salutary influence not to be canceled with impunity, we certainly must ascribe the same function to mental and moral and social suffering. Much more so, indeed. For myself, I seriously doubt whether sheer physical pain, of itself, ever developed or refined anyone. Animals suffer physical pain, and I suppose nobody will pretend that it enobles them. Certainly, if any kind of suffering is to be regarded as salutary, it is mental, and psychic, and social suffering.

Away, then, with all agencies and movements looking toward the relief and amelioration of soul suffering and social distress! Let the knife cut as deeply and keenly as it will into the naked soul; it is educative! Let pangs rack the body social with undiminished fury; they are salutary!

The whole attitude is one of medieval superstition. It is, in fact, another phase of the superstition that originally opposed the use of chloroform in labor, for the reason that it violated an alleged divine injunction requiring that women should suffer physical travail giving birth to child. Which reminds one of the objection offered by one of Dickens' smug characters (I rather think it was the alderman in "The Chimes") to doing anything for the relief of the poor, in view of Christ's very plain admonition that the poor we should always have with us.

By the way, it might be pointed out in passing that the supposed divine decree concerning the physical pangs of labor is really—as most of such alleged divine utterances are—a myth, founded in misquotation and misinterpretation. What the Lord actually said to Eve was, "In sorrow shalt thou bear children," meaning, of course, that, since sin had now entered the world, children would be forever a care and sorrow to those who bore them.

Without going into an elaborate discussion of the philosophic aspects of pain, the most common-sense view of the subject should suggest to us that there is now, and is likely to be for several generations, quite enough pain and suffering that cannot be avoided or relieved, to fulfil all the salutary requirements of this poor old world, without staying our hand from the prevention and relief of all that is within our control.

Possibly, as some of these philosophers assert, we really are coddling people a little too much. But to draw an analogy between saving a person the pinprick of vaccination and sparing a woman the agony of childbirth is, to compare small things with great ones, and it will not hold. And, I repeat, there is absolutely no reason why these philosophic considerations should be suspended in every other instance of severe pain and suffering and applied to the pain of woman in childbirth, except, as I have hinted, that the latter happens to be the one form of pain to which man never is likely to be subjected. On the contrary, if there be one form of pain to which a suspension of the philosophic law be applicable, it is the pain of childbirth; for at least one of the

elements in the salutary influence of pain is the deterrent element, and nobody wishes to deter women from bearing children.

For heaven's sake, then, let us abandon this senseless, wicked cant about the salutary value of pain and suffering to the child-bearing woman; or else let us be consistent and refuse to relieve any pain or suffering whatever, on the same grounds—in which case let us go out of business as physicians. By all means, let us thrash out the question of the twilight sleep, frankly and thoroughly. However, let us discuss it on its merits—as to whether its advantages as a saver of pain and suffering outweigh its disadvantages, in the shape of risks and difficulties.

Let us be scientists, not Pecksniffs.

Let the soldier be abroad, if he will; he can do nothing in this age. There is another personage—a personage less imposing in the eyes of some, perhaps insignificant. The schoolmaster is abroad, and I trust to him, armed with his primer, against the soldier in full military array.
—Brougham.

BILLY SUNDAY—A COMPARISON

A Washington (D. C.) physician writes us: "I like you. CLINICAL MEDICINE is the Billy Sunday of medical literature."

That is real praise. Billy Sunday may be sensational, but he "gets there." He is alive, he isn't afraid of saying what he thinks, and he isn't afraid of making enemies. Billy is doing good—great good. His methods are not approved by the hyperconservative—and neither are ours. He doesn't go out to convert sinners from the error of their ways by the crystallized and unsuccessful methods taught in the theological seminaries—and we do not always follow the teaching of the colleges or restrict our methods to those advocated by the great men of our profession.

Billy Sunday is making better men and women. That's the acid test—and that's exactly what we are *trying* to do (with your help)—to make better doctors who are also better men. Nobody can give us a finer compliment than to compare us with Billy.

A FINE SYMPOSIUM ON ANESTHESIA

The present administration of the Chicago Medical Society is making a fine record for itself. Last summer it held in this city a meeting of the Alienists and Neurologists of the United States, which was exceptionally valuable and instructive. January 26, 27, and 28, of this year, it presented a symposium on anesthesia, a subject which is probably attracting more attention at the present time than any other recently presented to the medical profession. This symposium lasted three days, including clinics during the daytime, and the reading of papers in the evening. One evening was devoted entirely to the twilight sleep; another quite largely to a discussion of the use of scopolamine-morphine in surgery.

The most significant thing about the twilight-sleep discussion was, that all those who read papers were warmly enthusiastic in its priase. While there was some criticism on the part of those discussing the papers, this was generally of a minor character. Several physicians were very highly indignant over the methods employed by the magazines to revive interest in this subject. One critic raised the very pertinent objection, that the Gauss method of twilight sleep was unavailable for the masses on account of its expense. It was declared that to follow out the technic exactly, would cost the average patient fully $500.00.

One of the most interesting addresses was that of Dr. John Osborne Polak, of Brooklyn, whose report was based upon an extensive experience. Equally interesting and enthusiastic were the papers of Dr. Kurt E. Schloessingk, formerly of Freiburg, and Dr. W. Francis Wakeman of San Francisco. Doctor Polak presented a statistical report of 1000 women delivered under the twilight sleep, as compared to 1000 delivered without it. He was able to demonstrate that the method was dangerous neither to the mother or the child; that the percentage of oligopnea and asphyxia was about the same under both methods; that the percentage of still-births was actually smaller under twilight sleep than without it; that there were fewer instrumental deliveries; that there were fewer high forceps operations; that there was no increase in postpartum hemorrhage; that the mother went through the confinement with less shock under twilight sleep than without it; that the puerperium was shorter; that there was less interference with the flow of milk; and that the babies as a rule seemed to be if anything healthier following twilight sleep than without.

When reports like these are read, it does seem as if some of the opposition to painless labor would be broken down, and we believe that it will be.

The objections to the Gauss method, as we have already pointed out, are these: (1) its expense; (2) that it can be carried through safely only by those having special training; (3) that it must be confined to hospitals, and

therefore is unavailable for the masses of American women.

These are very serious objections. Fortunately, however, the Freiburg technic is not final, and there are simpler methods which any physician can employ safely and with equal satisfaction, if he will keep in mind just two things—that danger lies in poor scopolamine, much of which has been offered in this market; and that care should be taken not to give too much morphine, which may interfere with the child's respiration. Insist upon pure hyoscine and pure morphine; and give the remedies in "dose enough" only, and satisfaction to physician and patient will follow.

Symposia like this one on anesthesia are of great value. They help to clear the ethical as well as the scientific atmosphere.

A lie which is half a truth is ever the blackest of lies.
For a lie which is all a lie may be met and fought with outright,
But a lie which is part a truth is a harder matter to fight.
—Tennyson.

LET US BE HONEST WITH OURSELVES

As every physician knows, there is nothing new about twilight sleep. Gauss has employed his present methods for nearly ten years. He has delivered thousands of women successfully, and the published reports of the work done by himself and Kroenig show that the method is humane, satisfactory, and safe. Also, during most of the last decade, a modified and simpler method of painless delivery has been in use in America by some thousands of physicians, with equally satisfactory results.

The astounding fact is, that, while these methods have been known to the medical profession all this time, no eminent professor of obstetrics in America, no great American hospital, no great American medical school apparently has paid the slightest attention to twilight sleep—except, perhaps, in the way of condemnation. And now at last, after ten long years of indifference, the profession is waking up! Why? Simply because the laity has taken this matter into its own hands and, through numerous magazine and newspaper articles, is demanding that medical men shall interest themselves in it.

This campaign is having its expected effect. Today it is unusual to take up a medical journal which has not something to say on this subject. Numerous prominent obstetricians are employing the method; within the last few months, hundreds of women have been delivered under morphine-hyoscine sleep in the hospitals of our great cities; and, so far, I have failed to read the report of a single physician who has practiced the method extensively who does not come out warmly in its praise. There is every evidence that "twilight sleep" is going to take the country by storm.

Now, here is the question every layman will be asking: "If the method was good when Gauss made his first report (and, by the way, the first complete, detailed American report of Gauss's work was published in this journal eight years ago), why, then, has it hot been good during all these intervening years? I understand that Gauss's technic has remained practically unchanged. What excuse is there for these ten years of silence?"

How shall we answer—how explain our indifference? The simple truth is, that the profession has been browbeaten into silence. It has been intimidated. Our doctors should have done years ago what they are doing today. Therefore, it comes with a peculiarly bad grace at the present time to make the assertion, as so many prominent obstetricians are now doing, that the present campaign of lay publicity is evil and dangerous.

This exploitation is good at least to the extent that it has compelled the profession to take cognizance of something in which the public is intensely interested and about which people have a right to demand the truth. It is good if it has compelled medical men to study this thing thoroughly, on its own merits, instead of yielding everything unreservedly to the critic and the conservative—to the "ditcher" of any new ideas. We ought to be big enough to see the pitiful inconsistency and ostrich-like hypocrisy of the position some of our leading men are taking in this matter—and about other matters, too, we may add.

The real truth is, that the medical profession owes a debt of gratitude to the lay journals for waking them up to the importance of a procedure of such vital interest to womankind. This matter is one in which the public is greatly interested. It has a right to know something about it. It has a right to discuss it. It has a right to examine and cross-examine *us*, and to study our relations to it, especially if the result of all this study shows that we have been dilatory. People have a right to demand that we doctors shall do our duty, if the evidence indicates that we are at fault. *We* are on trial, not they, and the evidence is against us.

In the name of heaven, let us be honest with ourselves and admit that the position

taken by the medical profession, in trying to "hush up" those enthusiastic women, is pitifully weak. Everything new ever introduced in medicine has met exactly this kind of opposition, and especially from the leaders of the profession. It is a good sign of the times that the public can compel us to study problems like this.

Do not assume that we are defending the Gauss "daemmerschlaf" unreservedly or that we believe it will prove to be "the last word" in settling the problem of painless delivery. We are fully aware that it has grave faults that will make its general adoption by the profession impossible. This method has the serious disadvantages of being suitable only for use in hospitals, requiring unusual expertness on the part of attendants, and of being very expensive. In the long run, simpler methods must be developed, which, then, no doubt, will be improved upon as a result of a wider acquaintance with it and its more general employment by the profession as a whole. No obstetrical technic is perfect which is not capable of fairly general application. Our socalled leaders have no monopoly of knowledge; no "stranglehold" on all the available cases. Their opinions are not the last word, and they cannot stand long in the way of progress.

What we need is, an honest investigation of twilight sleep, or painless delivery (call the thing itself by whatever name you please) on its merits alone. Do not let us excuse our own neglect or ignorance by accusing others. Give us more careful, cautious, constructive clinical work. We have had complaints enough. The women of this country have demanded relief from unnecessary pain in parturition. We are going to give it to them —yes, are giving it to them.

LABORATORY FALLACIES

There is a tendency of late to make a fetish of the laboratory methods of diagnosis. Admitting their values and advocating the general resort to this inestimable means of making correct diagnoses, we may at the same time warn our readers against too slavish and undiscriminating reliance upon them.

There are differences in technic and in the men who apply it. The director is busy and leaves the work to his assistants and students. He knows just how it should be done and he has told them repeatedly; he is under the impression that they know it as he does himself—and maybe they do. Maybe not.

In taking the blood pressure, the oscillations of a manometer share those of the mercury with those of the variations in blood pressure. Movements affect the result, and so does the anesthetic employed. Drugs injected into the jugular vein are carried directly to the heart and affect it more than those that first traverse the circulation. Certain salts irritate if they are not first diffused and have formed less irritant chemical combinations with the blood. Undissolved particles may plug the pulmonary capillaries and induce dyspnea and convulsions. Often it is better to inject into the peritoneal cavity or under the skin, the latter being slower in results. Sodium-carbonate solutions, employed to prevent coagulation, may enter the arteries and cause convulsions or even death.

Always the laboratory observations should be corrected and explained by the clinical studies. If the reports do not tally with the condition as observed in the sick-room, the correctness of the work done in one or the other is to be questioned. The clinician has no right to shirk his duties and to place all the responsibility upon the laboratory man. Nor has the latter so far developed his part as to render the clinician a superfluity.

We can't choose happiness, either for ourselves or for another; we can't tell where that will lie. We can only choose whether we will indulge ourselves in the present moment, or whether we will renounce that, for the sake of obeying the divine voice in us—for the sake of being true to all the motives that sanctify our lives.

—George Eliot.

VASOMOTOR SPASM

When men began to study the starry skies, they looked upon the bits of fiery light sprinkled thereover and arranged them in groups according to their appearance from the terrestrial viewpoint. So, in their fancy, they saw in the firmament the giant huntsman with his dogs pursue the great bear; they saw Cassiopeia reclined in her chair; the Pleiades as they bewailed their lost sister; serpents wriggling across the blue expanse; and many a tale of legend and quasi-history they saw depicted in the chance groupage of the luminous spheres. As we of later days learned somewhat of the truth and appreciated the difference between these apparent combinations and the immeasurable distances that separated the stars, the ancient constellations lost their mystic meaning, although they were retained for the sake of convenience.

Closely analogous has been the study of disease and the naming of diseases. To certain groups of symptoms there have been assigned distinctive names, and these symptom-complexes have been looked upon as distinct pathologic entities. Modern study has gone far in demolishing this primitive conception, and we now see two methods of rearranging and classifying the maladies to which mankind is subject.

By one of these methods the etiologic factor is held the cardinal one. By this, we separate the two forms of dysentery, and thereby gain immensely in precision of therapeutic applications. Widely differing manifestations of the activities of the tubercle bacillus, the gonococcus, and the germ of syphilis are brought together and placed under the same specific treatment. Bacillar diphtheria is separated from streptococcic infections, and so precision is secured in many instances where previously our best therapeusis was founded on guesswork.

This casual factor, however, does not cover the entire field. Many maladies depend, not on a single specific germ, but on a variety of causes, none of which may be essential. It is probable that no single germ possesses a monopoly of the ability to induce the malady known as pneumonia. Many diseases to which distinctive names are assigned are not entities, but mere assemblages of symptoms without any definite or essential element. Disease-forms shade into each other. The evolution of a malady may result in its receiving several names during its progress. Names frequently are mere conveniences without distinct separation. How many different designations may be applied to a mitral-valve lesion and its sequences—true and spurious hypertrophy, dilatation, fatty degeneration, pulmonary and hepatic congestion, and so on.

The clinical study of disease reveals certain pathologic conditions, not characteristic of any special malady, but appearing in many different diseases as a feature of greater or less moment. One of the most interesting and most frequently present is vasomotor spasm.

The patient may be suffering from any one of such widely differing maladies as mere chilling from exposure, neuralgia, a choleraic attack or the initial chill of an infective fever. He presents in any of these a vasomotor spasm of the cutaneous capillaries. The blood is driven from the periphery and congests the internal organs somewhere, and we have the evidences of hyperemia there. Extravasation may follow, and the damage may be serious.

Here, it is the imperative indication to relax the spasm and allow the blood to escape from the swollen vessels and flow back into the huge receptacle formed by the cutaneous vessel system. No matter what the cause—which very often is no longer in operation—or what the distinctive malady, this pathologic condition demands direct, swift and effective treatment. We should no more think of waiting to complete our diagnosis of the name of the disease than we should wait with a child showing a temperature of 110 degrees, to see whether it had scarlet-fever or measles.

The true physician—the clinician who studies his cases, his patients, and does not limit himself to books with printed page and leather cover—learns to recognize this condition in many different instances. He learns also to meet the condition and to remedy it, even so quickly that he may in consequence be unable properly to name and classify his case afterward.

The writer confesses to the possession of many hobbies. Were he to take a night to tell of each, he is sure he might rival Scheherazade in spinning out the lengthy tale. But among the chief of these favorites stands the combination that has done such good work in relaxing vasomotor spasm. Let us build our prescription:

Glonoin—nitroglycerin—trinitrin—glyceryl trinitrate—that many-named wonder to which its more enthusiastic advocates supply still another, namely, "the little giant life-saver." This agent acts more speedily when given by the stomach than hypodermatically. Still better, let it be placed into the mouth and absorbed thence directly into the general circulation, without having first to run the gauntlet of the liver. Glonoin instantaneously relaxes vascular tension, relieving congestions, and suffuses the brain with blood. The effects are evanescent—a few moments, and they subside; but in those precious moments our second agency has gotten into the fight, to wit:

Hyoscyamine. If any reader has learned to distinguish between atropine and hyoscyamine clinically, I should like to see his records or hear his story. Between hyoscine and scopolamine, there are certain differences that an attentive student of the human functions may distinguish. Between atropine and hyoscyamine, however, it requires a better observer than this writer professes to be.

Hyoscyamine prolongs, strengthens, and confirms the vasomotor effects of glonoin, but, curiously enough, it does so by following quite another road. While glonoin relaxes the vasoconstrictors, hyoscyamine stimulates the vasodilators. There is no antagonism here, but, acting on different anatomic structures, in an antagonistic manner, they both tend to increase the lumen of the capillaries and arterioles and thus let more blood out. The union is one of the finest examples of scientific prescription building as yet attempted.

Now comes strychnine. This alkaloid arouses the activity of the nerve-centers and accentuates the response of every function to the stimulus of other medicaments adminstered simultaneously with it. We get a better effect by adding strychnine, as we get a quicker effect by adding glonoin, and a more prolonged effect by adding hyoscyamine. Consequently the interreactions between these three agents are synergistic.

Directing our therapeusis against a disorder of physiologic function, it is essential that we carry our attack just far enough to restore physiologic balance, but do not, by passing that line, induce a disorder of the opposite nature.

Accordingly, we administer each of our three agents in the minute dose of 1-4 miligram, or 1-250 grain, and repeat this every five to twenty minutes, until the vasomotor spasm has been relaxed and a normal balance of the circulation has been restored.

There is something charming in the skilful and accurate handling of drugs in this manner, which is lost by him who pays no attention to his dosing, beyond the facts that the medicine was taken and the patient recovered. He loses much satisfaction who does not hold his remedies in hand as closely as a driver does his trotter.

It is remarkable how often one sees the indications for this powerful combination when once he has recognized the fact of vasomotor spasm and the control exerted over it by this triad. He who is inclined to the occult may therorize over the fact that this, like many of our most successful medicinal combinations, consists of a triad of agencies.

When atropine is injected into the carotid artery, it is carried directly to the cerebral centers and then stimulates the medullar roots of the vagus, slowing the pulse-beats. When it has passed into the general circulation and reaches the heart, it is said to paralyze the cardiac vagus-ends, and thus to accelerate the pulse. But how can the same drug be a stimulant to one end of a nerve and a sedative to the other end of the same nerve? Or how can we believe that this potent agent affects only a single nerve?

Is it not more rational to believe that, since it stimulates the vagus roots in the medulla, when atropine reaches the heart it there stimulates the vasomotors, and that the acceleration is also a result of stimulation, not of sedation?

If the latter be the case, we may look upon physostigmine as a synergist of atropine, since the former increases the excitability of the vagus, rendering it more responsive to stimuli. But Schiff found that atropine lessened the sensibility of the heart to changes in blood pressure, so that this might be increased or diminished without altering the pulse-rate.

This observation was utilized by Brunton in the treatment of pain or palpitation occurring in persons with high blood pressure or in those suffering the effects of cardiac strain after violent muscular effort. Benefit followed, but only when the atropine was pushed to marked dilatation of the pupils. It was, therefore, a full-dose effect.

In anemics, palpitation and short, quick heart-beat results from the low blood pressure, the ventricles having little blood on which to contract. Then we obtain benefit by administering digitalin enough to contract the arterioles and raise the tension of the arteries. Here, we are likely to witness a disturbance of rhythm, from irregular innervation; and it is one of the delicate tasks of therapeutics to combine a sedative that will regulate this without exerting a general debilitating action. While usually bromides are employed, the milder vegetable remedies are better suited to the need. Cypripedium, scutellaria, sumbul, valerian meet the indication admirably.

The disturbance may arise in disorder of some part of the digestive apparatus or of some other function, and then correction of this derangement will quiet the circulatory irregularity.

According to Biehn, arsenic paralyzes the nerve-ends of the vasocontractors in the vessels. Hay observed a similar action from potassium. Curare paralyzes the peripheric ends of both vasoconstrictors and of vasodilators. Opium contracts the vessels.

Physostigmine causes a rise in pressure, by inducing tetanic contraction of the muscles of the intestines.

Alcohol paralyzes the reflex and direct sensibility of the vasomotor center, while strychnine stimulates both.

In the darkest hour through which a human soul can pass, whatever else is doubtful, this at least is certain. If there be no God, and no future state, yet even then it is better to be generous than selfish, better to be chaste than licentious, better to be true than false, better to be brave than to be a coward. Blessed beyond all earthly blessedness is the man who, in the tempestuous darkness of the soul, has dared to hold fast to these venerable landmarks.—F. W. Robertson.

THE GENERAL PRACTITIONER AS A "SPECIALIST"

One of our readers enters a vigorous protest against our presentation, in last year's CLINICAL MEDICINE, of a series of articles on "Refraction for the General Practitioner." This, *en passant*, demonstrates over again the old adage that you cannot please everyone. We rather flattered ourselves that we were doing great things in furnishing our subscribers with these very practical and helpful articles, and were preening ourselves upon the fact that we actually had succeeded in arousing the doctor's interest in refraction and in starting a considerable number of them in the work. But it seems that in this one mind we stirred up resentment and disfavor.

Our critic is himself an eye, ear, nose, and throat specialist, and strenuously objects to the general practitioner being encouraged to meddle with refraction or any of the subjects which properly belong to the specialist. He declares that he is scrupulously ethical about restricting his practice to his own specialty, and that he expects reciprocal treatment from the general practitioner. From this standpoint he feels that he cannot lend his support to a scheme for trying to transform the general man into a specialist by mail.

We are very sorry indeed that our correspondent takes this unfortunate view of the matter. We cannot believe that he represents any very general attitude on the part of the specialists; indeed, the fact that his is the only communication of the kind that we have received indicates that he is the exception to the rule, and (if he will excuse our saying so) we feel sure that *his* position was taken hastily and without due consideration; also, that, upon more mature reflection, he will reconsider his position and revise his viewpoint.

To begin with, of course, there was no attempt to transform the general man into a specialist in the eye, any more than the other articles appearing in the journal represented an attempt to make the practitioner a specialist in the various subjects of which they treated. In common with every other medical journal, we publish what we consider to be interesting and helpful on any and every branch of medicine and surgery, *with the avowed purpose of making the general practitioner better fitted to do these classes of work;* but that does not mean that the practitioner is being pitted against the specialist, or that either he or we have any idea of making him a specialist in any of the subjects in question.

In a certain sense, the general practitioner is obliged to be (forgive the expression) an "all-round specialist." Our correspondent cannot really mean to carry his proposition to the extreme to which he actually carries it; for if the general practitioner refrained from engaging in any branch of work in which there were specialists, his position and his function would very quickly undergo a *reductio ad absurdum*. He could not undertake an obstetric case, for there are expert obstetricians; he could not do any surgery, for there are highly trained surgeons; he could not treat a nervous patient, for there are neurologists; and so on. Nobody really and seriously wishes to argue such an impossible case as that against the general practitioner—not even our correspondent, we are sure.

"No," our correspondent will probably reply, "but there is a point beyond which the general man should not encroach upon the domain of the specialist."

Granted, but—how shall we fix the point? Shall we arbitrarily stipulate a degree of skill which the general man shall be presumed to possess, indicating it by a definite specification of the work that he may do in this and that branch of medicine, and require that he refer everything outside this arbitrary schedule to the specialist? And shall we, moreover, withhold and suppress every bit of information and instruction intended for the general practitioner that transcends this fixed standard? Such a course would be manifestly impracticable; and even if it were practicable, it would be to the last degree disastrous, not only to medicine in general, but to the specialist himself.

The truth is, there can be no limit set to the socalled encroachment of the general practitioner upon the specialist's work except the capacity of the individual practitioner himself. All that he *can* do well, he *may* do, and *should* do. And the more he knows, and

the more he is able to do, the better it will be for the specialist.

There is no more shortsighted mistake than to suppose that the general practitioner's ignorance and incapacity is the specialist's advantage. On the contrary, the specialist thrives in proportion to the intelligence and capability of the general physician. Referred work, as every specialist knows, comes, not from the men who are ignorant and indifferent, but from those who are themselves progressive and ambitious. So that, from the sheerest considerations of policy (which we shrewdly suspect is what our correspondent really means when he says ethics) it is to the specialist's interest that the general man be as widely and highly trained as possible in every class of work.

As to this particular work in which we have been instructing the physician, there is a specially cogent reason for promoting its practice among general practitioners. The fact is that the eye specialists are numerically altogether inadequate to take care of the refraction work that demands attention. Neither our correspondent, nor any other city oculist, can reasonably expect that everybody who needs a pair of glasses will make a trip to the city, to the specialist's office, to be refracted; and if everybody did so, as we have said, the oculist would not be able to take care of them.

In fact, they are *not* taking care of them. Much of the present-day refraction work is being done, as everyone knows, by optometrists, and (worse) by unskilled jewelers, peddlers, and country storekeepers. To keep this work, as much as possible, within the medical profession, where it beolngs, is certainly to everyone's interest, including that of the specialist, to whom difficult cases will be referred.

There is another, larger phase of the question of the relation between specialist and general practitioner raised by our correspondent's communication, which, however, we have not time or space to more than refer to here. As a matter of fact, the general man can never properly be said to encroach upon the domain of the specialist; if either does any encroaching, it is the specialist. At all events, the specialist is the outgrowth of the general practitioner, not the other way about. He has no arbitrarily fixed ethical "rights" as against the general man. His position rests wholly upon his ability to outstrip the general practitioner in some special line, which he is usually able to do because he devotes himself entirely to one subject. He must maintain his superiority by continuing to outclass the general practitioner, not by demanding that the latter fall back or remain stationary. His function, likewise, rests upon his transcendency of the general man's knowledge and skill in some particular line. His office is not to *replace* the general practitioner, even in this special subject, but to *supplement* him whenever and wherever the capacity of the general man ceases to be adequate for the situation.

In the meantime we shall keep right on urging the general practitioner to enlarge his capacity for doing good work, and thereby enlarging his field of usefulness and increasing his income.

My mind is forever closed against embarrassment and perplexity, against uncertainty, doubt and anxiety; my heart against grief and desire. Calm and unmoved, I look down on all things, for I know that I cannot explain a single event, or comprehend its connection with that which alone concerns me. My breast is steeled against annoyance on account of personal vexations, or exultation in personal merit; for my whole personality has disappeared in the contemplation of the purpose of my being.—Fichte.

WHAT WAR WILL DO

What the War is doing, finds a vivid illustration in an editorial announcement published in the *Therapie der Gegenwart*, and this is what it says, even as early as in the second month of this gigantic struggle:

"*Inter arma silent ars et litteræ.* In these times when our brothers and our sons are battling in bloody combat for the greatness of the Fatherland, those of us whom circumstances compel to stay at home are bereft of all tranquility and collection for any scientific work and literary activity. All our doings, all our thinking turn toward the war . . . . Thousands of our colleagues are in the field, equally large numbers are busy in the home lazarettes, attending the wounded warriors. The 'therapy of the present' first of all is field-hygiene, war-surgery, treatment of the wounded, and the prevention of epidemics . . . . In our subsequent issues, we shall justify our name by meeting the practical demands of the times. . . ."

One only can add that, while the professional periodicals of Germany and Austria-Hungary have not changed in makeup and regularity of appearance, their contents very largely reflect the times, the contributions dealing with the medical problems of the battlefield, while the customary abstruse dissertations fall in the background.

Leading Articles

Pellagra and Its Treatment

By E. H. Bowling, M. D., Durham, North Carolina

EDITORIAL NOTE.—Doctor Bowling's interesting paper should be read in association with the two that follow. Three different theories regarding the etiology of pellagra are presented, and naturally different methods of treatment are suggested. You will find all of these papers extremely interesting.

I FREELY confess in the beginning that I do not actually know the cause of pellagra. I cannot prove anything, but just as many a man has been hanged on circumstantial evidence I think I can safely say that, after studying and working with more than 200 cases and curing 95 percent of the patients, I have the circumstantial evidence pretty strongly placed; and I am convinced I really know the cause of pellagra and a cure for it.

Pellagra is a disease that will deceive even the very elect, because it sometimes apparently will get cured with any kind of treatment or with none at all. Consequently it is amusing to read of a man, after he has treated some half a dozen cases, crying out "Eureka!" and forthwith rushing into print with the infallible remedy, when, as a matter of fact, we know that more than likely next spring his patients will come to him with an attack in a more aggravated form, and very likely have passed beyond the hope of medical aid.

Pellagra Is Infectious

By reference to the files of The American Journal of Clinical Medicine for December, 1910, it will be found that I then claimed that pellagra was an infectious disease, just as typhoid fever. The Thompson-McFadden Commission, which has been studying pellagra at Spartanburg, South Carolina, for three years, has this year come to the same conclusion, that the disease is not contagious, but infectious. I could cite a number of instances to prove this theory, but the following two will do: Mrs. W., a very poor widow, had a very violent attack and, as she was unable to hire any help, she had to do her own cooking. As a consequence, all four of her children contracted the disease, when up to that time they had been as healthy a lot of children as you could find in a day's travel.

John D., a widower, lived alone on his farm. Having no servants and, so, doing his own cooking, he made it a rule to go over to a neighbor's house several times a week and take supper with them; with the result that the neighbor's wife, who was rather delicate, developed a well-marked case, while indications now point to three or four of her children showing the disease next spring.

These examples could be duplicated many times over from my own experience, so numerous, in fact, that I am satisfied in my own mind, beyond any reasonable doubt, that my contention in 1910, that pellagra is infectious, is true. The theory of the semidrying oils (in our case cottonseed-oil) and its various products—led by the brilliant and versatile Mizell, of Atlanta—will work out neither in theory nor in practice. The eruption on the hands is a manifestation of a central irritation, as was first claimed by Niles.

Nason, of Maben, Mississippi, is partly right in his theory, and he would be altogether right if he could forget hookworms as a causative factor of pellagra; however, the contention that hookworms cause pellagra has been proven false beyond argument by a number of observers, notably by Siler and Garrison of the Thompson-McFadden Commission.

My theory of the etiology of pellagra is, that it is caused by a pathogenic germ, not as yet identified (Neither has the germ of scarlet-fever been discovered. But who doubts that it is caused by a germ?), which first finds lodgment in the stomach, where it produces a subacute catarrh. Those who have watched a number of cases and have inquired into their history always will find that the stomach symptoms antedate all other symptoms by from one to three years; and in every case of far-advanced pellagra you will find a total or nearly total absence of hydrochloric acid.

You will not find any pellagrin who has suffered from heartburn for years, unless it was caused by acid fermentation of the stomach contents.

This condition of the stomach, as I claimed in 1910, causes an interference with the digestion, and this poorly digested food going down into the duodenum, constitutes a feeding-ground for all the pathogenic germs that are in the gut; then to these are added the pellagra-germ and they manufacture the ptomaines and leukomaines. These toxins are absorbed by the lacteals and poured into the circulation, thus poisoning the whole blood current. When eventually the blood has reached the saturation point, it irritates the gyrus centralis anterior of the brain, whence we have, first, the eruption on the hands, next on the neck, then on the feet; and if the victim is exposed to the sun and the irritation reaches the sleep-center, we get the sleepless, gibbering idiot, who then, as a rule, is not long for this world.

This theory will account for all the symptoms of pellagra, except the yearly remissions. What causes these heaven knows; I don't. Still, if I may be allowed to theorize, I think I could explain it almost as well as we can explain why in some cases of long-standing chronic malaria there will occur a chill every twenty-one days.

Is it not possible, then, that the natural resisting power of the system—as expressed by the opsonic index—destroys the germs, until there remain not enough of them to produce the outward symptoms, so that it takes a definite period for them to generate enough poison to bring about the central irritation that produces the eruption? I have seen a number of far-advanced cases in which the eruption and scaliness did not leave the hands in the winter, but hung on year in and year out. It is only the mild cases or those in which there is improvement under treatment in which we find the yearly remissions.

This is all theory, but to those who have treated any large number of these patients and who have not cured all of them in a few months with arsenic, in one or the other form, or with jaborandi, gelsemium or hydrotherapy, I appeal to say whether it does not smack of common sense, and whether this theory does not rather fill in with their own experience.

My Own Method of Treatment

Accepting this theory, the treatment is comparatively simple and may be varied according to the doctor's individual ideas and the indications in each case. I will only outline the plan of treatment that has proven most efficacious in my own hands; however, I will state right now that I have very little of routine treatment and find that I cannot follow the same method for any two consecutive patients. Some time ago I had four patients in one room, and for each one wrote different prescriptions.

One treatment that is routine with me and which I apply to every patient is this: I order for every pellagra patient a tablespoonful of castor-oil every night at bedtime, and I keep this up sometimes for three months—sometimes even during twelve months—until I get the patient well; in other words: if the patient is constipated, it relieves him; if he has diarrhea, presto, change, it does the same thing. If he has diarrhea, it is because his system is charged with the poison and nature is making heroic efforts at elimination, and castor-oil assists in the clearing out; then nature cures the diarrhea.

However, keep up the castor-oil! Once I had a slip of a girl who went, from 90 pounds, up to 160 pounds—and she took a tablespoonful of castor-oil every night for twelve months, and when I told her she might stop she refused to do so; said she felt better when she took it. The castor-oil is an eliminant; that is, it removes the feeding-ground of the germs.

Where Chlorine Water Comes In

Now you want to destroy the germs. If the mouth is not very much inflamed, thus indicating an inflamed condition of the entire alimentary tract, I immediately put them on freshly made chlorine-water, a teaspoonful every two hours. The chlorine water should be freshly made, though, as follows:

Take 40 grains of powdered potassium chlorate, put into a clean, dry, 8-ounce bottle, pour on 4 drams of strong hydrochloric acid, let the bottle get well filled with the yellow chlorine gas, then add water (in small fractions at a time and shaking after each addition) sufficient to make 8 ounces. The solution should be of a deep-yellow color. If it is not of that color, you added the water too soon. Don't use chlorine-water that looks like plain water—colorless, or nearly so.

If there is much gastritis, you will find that the patient can not take the chlorine-water. It will give an intolerable burning in the stomach. If it does this, stop the chlorine-water immediately and undertake to cure the gastritis with a mixture composed as follows:

Fluid extract of condurango....ozs. 1 1-2
Fluid extract of boldo.....ozs. 1 1-2
Listerine.....ozs. 2 to 4
Carapeptic liquid, enough to make.....ozs. 8

Label: Take 2 drams in some water, three times a day, one hour after eating.

After the gastritis has been cured, then you can go back to the chlorine-water and continue this for a month or so.

When there is much irritation of the bowels, you will find that you will have to discontinue the castor-oil, because under the circumstances it will act so freely that it will weaken the patient.

On the other hand, when I find that the castor-oil does not check the diarrhea after having been taken for a week or two, I stop it and prescribe the following mixture:

Milk of magnesia.....ozs. 2
Liquid albolene.....ozs. 10

Take 1-2 ounce (in water), three times a day, before meals.

This can be varied to suit individual requirements, but at all events keep up the liquid albolene, either alone or in any combination indicated, for its antiseptic and healing influence upon the inflamed mucous lining of the bowels. This treatment should carry you through the stage of acute symptoms.

Now begin with your tonics, and endeavor to restore the acid secretion of the stomach. One of the best iron-and-arsenic tonics I have found is a combination of iron and cacodylate of sodium. Another, oldtime, formula from which I have had great results, and which I still use in a great many cases, is this:

Potassium nitrate.....dr. 1
Ferrous sulphate, exsiccated.....dr. 1
Nitrohydrochloric acid.....drs. 6
Mix, warm slightly, let digest thoroughly, then add:
Solution of potassium arsenite...drs. 2

Label: Give 8 drops in water, three times a day, after meals.

When I stop the chlorine-water, I usually begin with the calcium sulphide, as recommended by Mizell; and this remedy fits in right here better than anything I know of, its action being to keep up the antiseptic action in the stomach and bowels with the least irritation.

At this stage of the treatment is where the cacodylate of sodium, hypodermically injected, comes in; for, it helps to restore the hemoglobin in the blood, besides acting as a general tonic. In the acute stages of the disease, I am convinced, arsenic in any form does no good.

Keep the Bowels Clean

I find that a large proportion of my patients, after the acute symptoms have passed, are constipated despite the castor-oil they take; the cause being that the liver is not performing its normal functions. The bile is nature's cathartic, and when not enough bile is present, there certainly will be constipation.

The medicine that has given me more satisfaction than any other is a tablet composed of the active principles of euonymus, chelidonium, and chionanthus, and podophyllin, strychnine, and bilein. While this is a proprietary medicine, the manufacturers give out the formula; and it is so much better than the nauseous liquid made by using the fluid extracts. I have tried the latter, but very few patients will take it. I have never found anything that was quite as good as a liver stimulant—and what is needed in a convalescing pellagrin is a clean and, as near as possible, antiseptic alimentary canal. But, the very best intestinal antiseptic is bile. Indeed, if people always had plenty of healthy bile in their alimentary canals, our work as doctors would almost be confined to accidents and childbirths.

The treatment here outlined will effect a cure in the average recent case of pellagra, if persisted in long enough. But, then, all our cases are not mild ones. The worst patients I see are those who have been "cured" from one to three times with arsenic and a lot of other things. We shall have trouble with these old chronic cases, or even with recent cases in chronic alcoholics and in debilitated, rundown women, when the treatment I have outlined may hold the disease in abeyance, yet the patient will not get well and we can see that we are gradually losing ground.

However, very few of these cases are absolutely hopeless; but, in order to carry out a successful course of treatment, the patient should be in a well-appointed hospital. Some of these seemingly hopeless patients I have seen brought around and cured by means of hypodermoclysis, as was first recommended by Dr. Joseph Graham, of our city. I administer from one pint to one quart of warm normal salt solution once a day, repeated during one or two weeks. Of course, I keep up the medicinal treatment at the same time.

During this year, I have tried, in three patients who seemed to be past hope, hypodermic injections of pituitrin, 1 Cc. once a

day for two weeks. The results were very gratifying, and I consider the remedy worthy of further experimentation. I gave it only in extreme cases after all other remedies had failed, and all three of the patients made rapid and seemingly permanent recoveries. I certainly should use it again when indicated, and I hope others will give it a trial in their desperate cases; of course, in conjunction with other treatment.

Pellagra Cured by Typhoid Fever

I have known three victims of well-developed pellagra to be taken with typhoid fever who, after recovery from the latter, seemingly were cured of their pellagra. Reasoning that, typhoid fever will cure pellagra and that antityphoid vaccine will keep off typhoid fever, I thought, why would not the vaccine prove of benefit against pellagra. At any rate, I determined to try the scheme on the first favorable opportunity.

The case was not long in presenting itself in the form of a very weak, anemic woman, who had to work hard in one of the mills to help support the family. She did not improve very fast under my usual remedies, so I gave her the injection of the typhoid serum. Her recovery was very rapid and most satisfactory. She is now back in the mill and seemingly cured, although, of course, I still keep her on tonics. All in all, I am well pleased with the experience in this single case. Nevertheless, "one swallow does not make a summer," and, so, it will take further trials to prove the efficacy of pituitrin and typhoid vaccine.

For the nervous symptoms, the medicine that has given me more satisfaction than anything else is a pill of the hypophosphites of lime and soda, although I have had good results from phosphoric acid (dilute) combined with celerina. As to the intense burning of the feet, which occasionally occurs in far-advanced cases—and which is one of the most annoying symptoms of this disease—I get more relief from bathing the feet in a strong solution of magnesium sulphate than from anything else, though, like all the other remedies I have tried, it will sometimes fail.

In the low typhoid cases, when the system seems to be prostrated through the influence of the poison and the condition closely simulates pyemia or sapremia, the one single drug that best meets this condition is fluid extract of echinacea, given in doses of from 15 to 30 drops every two hours, combined with some digestant.

Another procedure that I like is, to give the patient an all-over bath each night and morning, followed by a good rub-down with a coarse towel, and then give a vigorous rub with fine table-salt. I don't always let the patient know that I am having him rubbed with salt, because many of the more ignorant patients possibly would object; but if you write a prescription "sodii chloridum mensale" and make him get it from the drugstore he will look on it as a real medicine and will use it faithfully as directed. If, contrariwise, he knew it to be common salt, he likely would not use it or else look upon it with a certain contempt and not implicitly follow directions. Where I can get my patients into a hospital, I always adopt this treatment, and it has proven a very satisfactory remedy.

As to diet, I make no restrictions, but I recommend good fresh vegetables, and especially fruit. I encourage patients to drink all the lemonade they feel like and to eat pickles liberally. My idea is, to nourish and to acidify the system. The only item I proscribe is factitious lard, the chief component of which is cottonseed-oil. I do not accept Mizell's theory; still, I cannot prove him wrong and think it best to avoid the very appearance of doing wrong. Hence, its interdiction. I want to nourish the patient to the highest possible pitch, and for that reason allow the stomach to suggest what it is likely to digest.

The greatest mistake, in my opinion, that is made by many practitioners is in thinking that the patient is cured when the eruption disappears from the hands. If we stop treatment at that point, the chances are that we shall have the same patient the next year, but only with the malady in a more aggravated form. The treatment must be kept up, with only very slight, if any, intermissions, throughout the next period of eruption.

For the benefit of those who have not had much experience with this treacherous malady I will say: Do not look upon the eruption as the disease itself—it is merely a symptom, a red flag hung out by nature to notify you of danger; the eruption is nothing but a manifestation of a central lesion, and if we exert all our energies in trying to subdue the rash on the hands, forgetting, or neglecting the basic cause, our patients will sorely suffer because of our error.

What Are the Signs of Cure?

I never feel that a patient is cured until he begins to put on flesh, his digestion greatly improves, and the roses begin to come back

to the cheeks as an indication that the hemoglobin is being restored to his blood and I can get hydrochloric acid into the stomach. I should advise those who have "cured" patients of pellagra during the last summer to look them over well, and if they can not stand all the tests to put them on treatment *now* while the disease is, apparently, in the nascent stage, making it an object to get them into the best possible condition for resisting the next ordeal.

As this paper was intended to deal only with the treatment of pellagra, I have not taken up space to go into the symptomatology; besides, this malady is now so general and widespread, that it is taken for granted that any physician will recognize a well-marked case. Still, it is best not always to wait for the characteristic eruption to appear, because, if the patient is not exposed to the sun, quite likely there will not be any eruption at all. One of my very worst cases this year was that of an invalid, who never had any eruption at all; nevertheless, there was that flabbiness about the skin of the hands that was suggestive.

Two points I wish to emphasize especially. Under no circumstance stop the treatment when the hands have become clean; your patient is not yet cured. Keep up treatment continuously with more or less regularity until the patient has passed through the next period of eruption. The other point is this. Look upon all cases of chronic indigestion, nervousness, burning in the hands and feet, and giddiness (especially if this is associated with increased patella reflex and a loss of hemoglobin) with a certain amount of suspicion. If there is pellagra in your neighborhood, you may look out for more, and you had better get your dyspeptic, nervous women in as good shape as possible.

I fully realize that we cannot diagnose pellagra definitely before the appearance of the characteristic eruption; nevertheless, when we have studied and treated a larger number of cases we frequently can recognize certain significant symptoms before the appearance of the rash. I have treated a number of patients as though they did have the disease when I could not diagnose the trouble as pellagra, with the gratifying result of a uniform and in some cases rapid improvement as a consequence.

Within the last two years I have had under treatment 146 cases of well-marked pellagra, not counting those whom I suspected of being infected, and had but 6 deaths, or, a mortality of 4 percent. It may be that my cases were mild; but, if so, I have no desire to see bad ones. I think the mortality, even in our own city, where arsenic was the main remedy, has been recorded as at least 20 per cent.

Arsenic alone, in fact the whole of the old-line treatment, has been tried sufficiently and has been found wanting. Let's branch out on new lines and try to discover a more rational treatment of this terrible scourge that is so violently smiting our fair Southland.

THERE is not anything in a professional way that a doctor is unwilling to do for a patient. He is able to put his sense of smell to sleep at any moment. Filth of all kinds is to him merely so much misplaced matter. He is ready for the most revolting tasks. He shows no more disgust at the foulest form of disease than if it were a rose-cold. He is ready to scrub a slum floor after working all night on a difficult confinement case. And if the husband, a great hulking brute of a 'longshoreman, comes in fighting drunk and proposes to mistreat his exhausted wife, the doctor is ready to wipe up the floor with him as well.—Robt. H. Schauffler.

Pellagra, and the Role of the Sodium Salts

By George D. Fairbanks, M. D., Brownsville, Texas

EDITORIAL NOTE.—Doctor Fairbanks believes that deficiency of the sodium salts plays an important part in the etiology of pellagra. He submits strong evidence in support of this hypothesis.

WHEN taking up the study of unknown diseases, it generally is necessary to jump from causes to effects or else to investigate the latter first and then work up to the causes. In pellagra, a malady which continues to baffle all attempts to ascertain its cause and means of prevention, the effects or symptoms correspond almost identically with the various manifestations of purin toxemia, and this correspondence is so striking that many authorities consider so-called biliousness one of the early stages of pellagra. "There seems to be every grade of intensity in pellagra poisoning, from the mild biliousness suffered by a large proportion of the population of the southern states to the severe developed condition of pellagra." (Hare, "Modern Treatment," vol. ii). Another significant fact regarding pellagra is, that all remedies that seem to have been of any benefit are of the classes which prevent purin formation or assist in its elimination. Atoxyl (a sodium-arsenic combination) retards protein metabolism. (U. S. Hygienic Laboratory "Bulletin" No. 87, Aug., 1913, p. 244.) Atoxyl causes great improvement or cure in many cases of pellagra, according to Forchheimer; and this author also reports benefit from the use of sodium chloride and of sodium cacodylate.

Most treatments for biliousness are alkaline, usually the sodium salts. Dr. Eugene S. Talbot tells us that he found the French people a nation of soda-takers, and that this alkali is needed to neutralize the Gallic blood of acidosis. (Amer. Jour. Clin. Med., 1914, p. 564.) Then, again, we learn from Dieulafoy (1911) that at the present time pellagra is very rare in France, and from Lavinder (U. S. P. H. S., Report No. 65, 1911) that Germany and Switzerland have always escaped pellagra; while in Spain the disease never has spread widely. The practical disappearance of the disease from France is mentioned, where once it was endemic and rather widely prevalent. Talbot further states that the relation of pellagra to water has, of late, attracted much attention and demands further investigation. We would suggest looking into the chemical constitution of suspected drinking-waters, as well as the presence of soda springs in localities where pellagra is scarce.

Many symptoms are common to pellagra and acidemia, such as cutaneous erythema, gastroenteritis, decreased gastric hydrochloric acid, unhealthy, sour-smelling stools, and nervous and mental disturbances. However, the great stumbling-block for this assumption seems to be the fact that pellagra simulates an infectious disease, by a pronounced occurrence in limited localities, in conditions of poverty mostly, and in an apparently increasing number of victims. Opposed to the infection theory, however, is the fact that pellagra has not been proven to be experimentally transmissible, it attacks those in the best sanitary conditions as well as the poorest, occurs at almost every age, though in different percentages, is very widespread in the world in all climates, and occurs where there is no possible chance in our present state of knowledge to trace infection.

Observers at all times have connected pellagra with the diet, and, as the symptoms of it are so similar to the effects of purin poisoning, we think it reasonable to assume that the two conditions may be the same, only differing in severity or type, until experience or discovery shall prove otherwise. "The general opinion in Europe is, that pellagra advanced with the extension of maize cultivation and the more general adoption of this new cereal as an article of food." (Manson, "Tropical Diseases.") "It is a condition, probably, rather than a specific disease, and due to impaired nutrition." (Stelwagon, "Skin Diseases.") "The majority of persons who contract pellagra have lived for years on a mainly vegetable diet." (Voegtlin, U. S. P. H. S.)

Starting with this assumption, then, that pellagra and purin toxemia are related, we find that the causes of acid excess in the blood are varied and numerous, and are both endogenous and exogenous. We have metabolism with its degrees of activity and the excretion of its purin-toxin products more or less faulty. "Large quantities of uric-acid salts may occur in the blood, which are derived from the catabolism of nucleins of the leukocytes." (Stenhouse, "Pathology.")

"Acid wastes of tissue metabolism cause depressing effects upon the higher nerve-centers, and these endogenous purin-bases which are excreted in the urine are derived mainly from the disassimilation, or catabolism, of the voluntary muscles." (Hare, "Modern Treatment," vol. i, p. 168.) "Acidosis is due to oxybutyric and diacetic acids and acetone. They are all related, but the first is found in greatest amount and is probably a normal product of body catabolism, being oxidized as fast as it is produced. When there is an absence of oxidation of sugar-forming material in the body, these acids remain unoxidized and appear in the urine." (Ibid., vol. ii, p. 433.)

Metabolism is considerably influenced by impure air and water, age, worry, exposure, disease, childbearing, and so on; and all these conditions appear to be predisposing factors in pellagra, according to Goldberger, Lavinder, and Grimm. (U. S. Pub. Health Ser.) "In the puerperal state, there is increased metabolism, and evidence seems to point to autointoxication as the cause of the anemia." (Stenhouse, "Pathology.") "The influence of age upon metabolism is a well-known physiological fact. Children between certain ages show much greater proportional activity in their metabolic changes than do adults or infants." (Guenther, on "Physiology.") In old age, metabolism is less active, but the morbidity rate of pellagra is less, probably for the reason that most persons are attacked between 20 and 40 years of age and die before reaching old age.

Etiology of Neurasthenia. Uric Acid

Between 20 and 40 seems to be the age for neurasthenia, among all classes, rich and poor, of country and of city, but predominating in females, and doubtless results in part from the hurried, nervous existence of our present mode of living. The pathology of neurasthenia is principally nerve-cell exhaustion, owing to destruction of body-nucleins; and in the decomposition (autolysis) of nucleins there are formed certain purin-bases (xanthin and hypoxanthin), which are converted in the body into uric acid (trioxypurin) by oxygen and an oxydase ferment, in the presence of an alkaline solution. (U. S. Hyg. Lab. "Bulletin," No. 59, Dec., 1909, pp. 66, 104, 105, 129.) "Acids, even the weakest, are found to prevent the action of animal tyrosinase (oxydase), while the effect of the addition of small amounts of alkali is, to cause a distinct increase in the activity of the ferment." (Ibid., p. 81.) "The metabolism of proteid animal food tends to render the blood and tissues acid, through being rich in purins, which, when not properly oxidized and excreted, circulate in the blood as urates, acting as poisons and producing gout in its various manifestations." (Hare, "Modern Treatment," vol. i, p. 375.)

"Uric acid is not an intermediate product in the formation of urea and never is normally found in the blood, but circulates as soluble sodium quadriurate, which, by accumulation, becomes the less soluble biurate and is deposited as such in the tissues, where it acts as a local irritant, and frequently is found at autopsies, evidently having caused related symptoms during life. Large amounts may circulate in the blood without giving rise to any serious disturbance, until precipitated from some cause." (Stenhouse, "Pathology.")

Physiologically, the blood does not contain any appreciable quantity of uric acid, but in gout large quantities are found as acid urates, formed by a double rearrangement between acid sodium phosphate and the neutral urates held in solution and become poorly soluble; but the addition of alkalis easily dissolves them when they appear in the urine. In pernicious anemia, fevers, and acidosis, the alkalinity of the blood is decreased, and in cholera, according to Cantani, the blood may even become acid. (Sahli, "Diagnostic Methods," pp. 855, 671, 736.)

Economic Balance of Sodium

Bearing on this acidity and in reference to what is stated further on concerning sodium, it is remarkable what improvement has been attained in the treatment of cholera by the infusion of hypertonic sodium-chloride solution. (Hare, in his "Modern Treatment," vol. ii, p. 822, mentions Fuller's alkaline treatment—sodium bicarbonate—for acute articular rheumatism, which was based in part on the theory that it restored the alkaline condition of the system, which had become acid; and this treatment still is in use generally today.) Again, Dr. Curt von Wedel (*U. S. Med. Jour.*, July, 1912) states that in burns an intensely acid toxin is produced, which may be neutralized by sodium bicarbonate used locally and internally, to prevent congestion of serous and mucous surfaces and the meninges. It is stated that the vomitus, stools, urine, and other secretions, as well as the burned surface, are charged with diacetic acid and various other organic acids. These several references to acidity of the blood are given to show that the condition does occur, in localized parts at least, and that the ad-

ministration of a sodium salt always is beneficial.

If sodium chloride is withdrawn from the diet of otherwise healthy individuals, it produces lassitude, incapacity for work, digestive disturbances, and so on. (Hare, "Modern Treatment," vol. i, p. 375); and vegetables contain large amounts of potassium, which, when ingested in considerable quantities, reacts with the sodium chloride present in the food and body and forms salts foreign to the blood, which are promptly excreted by the kidneys. As a result, the normal amount of sodium chloride is lessened; and, as inorganic salts are bound up in the structure of living material and necessary to normal reactions, the need of sodium chloride is particularly felt by animals that live on vegetable food. (Guenther, "Physiology.") This reaction continuing, in time reduces the sodium equilibrium of the body the same as carbon or nitrogen equilibrium is reduced.

It is a significant fact that starvation produces a reduction of sodium equilibrium and a lessened resistance to purin poisoning. During starvation, the body clings to its salts, and the amount of sodium chloride excreted soon falls to a low figure, while, if ingested in superabundance, it is promptly excreted. So, we have nitrogen and carbon, oxygen, water, hydrogen, and salts equilibrium. (Guenther, "Physiology," and McGlannan, "Chemistry.") "Salant and Rieger found the resistance of rabbits to caffeine (a xanthin-purin) to be diminished when the animals were starved for four or five days, while the fatal dose was about 30 percent less than for well-fed rabbits." (U. S. Hyg. Lab. "Bulletin," No. 89, June, 1910, p. 12.)

In this connection, we wish to call attention to the fact that many of our foods contain xanthins in large amount, and the *Congressional Record* states that the caffeine consumed annually in the United States, in the form of drugs, tea, cacao, coffee, alone amounts to 16,254,221 pounds.

All hydrochloric acid in the gastric juice is derived from the sodium chloride of food by selective absorption of the cells of the gastric mucosa, the alkali passing to the blood and the acid to the lumen of the glands. (Guenther and McGlannan.) All pellagrous patients suffer from diminution or complete absence of pepsin and hydrochloric acid in the stomach, and the diarrhea sometimes is promptly checked by the administration of these agents. (Hare, "Modern Treatment," vol. ii.) Sodium chloride given internally has been recommended by Lombroso, especially for pellagra in children (Voegtlin, P. H. S.), and also by Forchheimer, but the latter considers it too irritating to be satisfactory.

Alkalinity of the Body-Fluids

The alkalinity of the blood is due to sodium bicarbonate and sodium phosphate (McGlannan). When sodium bicarbonate is ingested on a full stomach, it is absorbed as carbonate and renders the blood alkaline. (Kiepe, "Therapeutics"). Therefore, it is reasonable to infer that an absence of these sodium salts may decrease the gastric juice; and that is what we find in pellagrins, as before stated. The saliva is normally alkaline, and, on becoming acid, will cause stomatitis. (McGlannan.) The bile-salts are sodium glycocholate and sodium taurocholate, and the activity of the pancreatic secretion depends upon an alkaline medium, as do all the tissue-fluids. "Alkalis decrease the acidity of urine, increase urea-nitrogen and decrease ammonia-nitrogen, promote oxidation, and *heighten the bactericidal power* of the body-tissues by *increasing the alkalinity* of the body-fluids." (Hare, "Modern Treatment," vol. i, p. 828.)

Alkalinity is necessary for the activity of oxydases (Kastle, U. S. P. H. S. "Bulletin"), and these ferments are found widely distributed in the tissues and secretions of animals (milk, saliva, leukocytes, etc.). (Hyg. Lab. "Bulletin," No. 59, Dec., 1909, p. 119), while the oxygen for their use is carried by the iron of the hemoglobin.

On pages 32 and 33 of the above-mentioned bulletin, it is pointed out that oxydases are concentrated in the epidermal and exposed structures of the body, and it is thought that their physiological role both in animals and plants is one of defense against invasion by microorganisms. This would seem to be an important point with reference to pellagra, as in this disease the epidermal surfaces, including the gastrointestinal tract, are always particularly affected. On pages 70 and 81 of the bulletin, there is this statement: "Tyrosin is an end-product of proteolysis and, when acted upon by the oxydase (tyrosinase) in alkaline solution, it produces the pigment 'melanin,' and a small quantity of this melanin melted with the purest sodium hydrate from sodium gives the odor of indol and skatol." This suggests that the absence of the odor of indol and skatol in the feces of pellagrins may be owing to acidity of the stools preventing this tyrosinase reaction; also, a decrease of alkalinity in the blood supply of the epidermal surfaces may interfere with the activity of the oxydases concentrated there to protect

the body from microorganisms, allowing the latter to flourish, with the consequent irritation and inflammation.

This is the most rational explanation of the peculiar erythema selecting exposed surfaces, since those surfaces naturally accumulate more microorganisms than do surfaces protected by clothing. According to Stelwagon ("Skin Diseases"), the sunlight-theory is untenable, for the reason that sometimes erythema is seen on the feet of those pellagrins who are footclad; but, the feet always accumulate many germs, notwithstanding they are covered. The decrease of alkalinity of the blood going to the gastrointestinal tract may account for a lack of oxidase activity there, with its invasion of bacteria that have passed the stomach because of its lack of hydrochloric acid.

Finally, we wish to cite once more the Public Health Service "Bulletin," No. 59, on "The Oxidases," as follows: "The catalase value of normal blood was found to be 23, whereas for blood in certain diseased conditions the catalase value was considerably less than normal, ranging down, in tuberculosis, to 10 to 13; in nephritis, 8 to 13; and in carcinoma, the remarkable fall to 1.3 to 2.1. Consequently, wasting diseases may well be held to be a predisposing cause of pellagra, as Goldberger, Grimm, and all other investigators universally agree."

To summarize: It has been the object of this paper to draw attention to facts which tend to support the theory presented: namely, that pellagra is due to a lack of sodium salts in the economy.

It seems that in conditions where sodium salts are constantly ingested pellagra is rare, unless the amount ingested is overbalanced by the amount excreted. It appears that this may occur under vegetable diet, in starvation, disease, and so on.

Secondly, lack of sodium salts evidently interferes with the excretion of purins, allowing them to accumulate in the blood and to cause irritations similar to those seen in pellagra.

Third, the decrease or absence of hydrochloric acid in the stomach results from a deficiency of sodium salts, and

Fourth, a diminution of the sodium salts reduces the alkalinity of the blood to perhaps the point of acidity, in the excretions at least, and this interferes with the activity of the oxidases in their protective function against invading microorganisms.

Pellagra: Its Etiology, Pathogenesis, and Treatment

By E. M. Perdue, M. D., Kansas City, Missouri
Professor of Tropical Diseases, Eclectic Medical University

EDITORIAL NOTE.—Still another hypothesis concerning the etiology of pellagra is presented by Doctor Perdue, one proposed by two distinguished professors in the University of Rome. You should read Doctor Perdue's able exposition of this theory, presented herewith.

PELLAGRA is a chronic intoxication caused by colloidal silica in drinking-water.

There has been so much written of late in medical journals and in the bulletins and reprints of the Public Health Service that is erroneous and misleading that the foregoing bold statement is justified, in an attempt to arrest the attention of the profession.

Pellagra is a disease strictly localized and contracted in zones where the water commonly drunk by the people is in contact with an argillaceous terrain.

It follows, therefore, that pellagra is not dependent upon maize alimentation; that it is not caused by infestation with filaridæ; that it is not a parasitic disease transmitted by the "buffalo-gnat" or by stomoxys calcitrans.

The conditions necessary for the development of pellagra are: a soil or water source derived from disintegrated granite, feldspar or serpentine, or from allied rocks containing no alkalis, no intervening sedimentary rocks containing the alkalis or especially the carbonates, no organic matter which would precipitate silica, and no treatment of the water supply with alkalis, and that the populace commonly resort to and use this supply.

These conditions obtain on the slopes of the Alps and of the Appenines in Italy, on the eastern slopes of the Alleghany mountain system in the United States, and in a few other

isolated sections of the United States as well as other parts of the world.

Both colloidal and gelatinous silica are readily absorbed from the digestive tract. They enter into colloidal combinations with the proteid substance of the tissue-cells. This colloidal combination extracts water from the tissues, decreases the sodium-chloride output in the urine and frees hydrochloric acid, with resulting increased intoxication.

The most marked characteristic of the pathogenesis of pellagra is the drying of the tissues. The skin becomes so dry that the hair falls out, while desquamation is a prominent diagnostic feature. The pleural, pericardial, and peritoneal fluids dry up. The muscles and tissues become dry and sticky because of the exhaustion of the watery constituent. The nervous system becomes so dried out that there is present, first excitement and then prostration and paralysis.

This drying process can be hastened by exposure of parts to the atmosphere and sunlight. Since the acid intoxication is in combination with the tissue-cells, those cells which are exposed to air and sunlight become dried out and the acid toxic fluids concentrated. The cutaneous manifestations of pellagra are visible above the collar and below the wristband. In patients in whom the acid concentration is great, the cutaneous manifestations appear early in the spring or summer; in those in whom the concentration is less, these manifestations appear later in the summer.

The enumerated conditions of the cutaneous manifestations are characteristic of a chronic intoxication and negative any other theory. To an epidemiologist trained to observe the obvious in clinical research, these conditions would upset any preconceived communicability.

The classical triad in the symptomatology of pellagra consists in cutaneous manifestations, digestive disturbances, nervous disturbances. We have briefly discussed the pathogenesis of the cutaneous manifestations. In the pellagrous patient, the digestive fluids are dried up. The walls of the stomach and intestine are very thin. The fluids necessary to the formation of digestive fluids and for the promotion of dialysis and assimilation are wanting. Through nature's attempt to supply the lacking water, thirst becomes insatiable. The material in the stomach and intestine goes undigested, undergoes putrefaction, and the intestine becomes distended with gas. The intestine with its accessory glands becomes congested and hyperemic and the mucosa and serosa marked with punctiform hemorrhage. The serous membranes become dry and parchmentlike.

The nervous disturbances have the same characteristics of exhaustion of water: first hyperesthesia, this followed by prostration and paralysis.

Experimental and Clinical Proof

The complete history of this intoxication has been worked out experimentally and clinically. The animals used in the experiments were guinea-pigs, rabbits, dogs, and monkeys.

The experimental animals were injected with colloidal silica, gelatinous silica, colloidal and gelatinous silica with gelatinous alumina added, and colloidal and gelatinous silica with the addition of the common alkalis. They were also fed all of the substances named, mixed with their daily ration. In a separate and distinct experiment, animals were also given water from a pellagrous zone.

In all cases of injection of silica, ingestion of silica, and drinking of water from a pellagrous zone, the animals presented, in life, the classical triad of pellagra, as mentioned, and when dead of the intoxication they showed at autopsy the classical lesions of the disease.

Animals made sick from the intoxication responded readily to the indicated treatment. At the same time pellagrous patients from a pellagrous zone manifested the same symptoms and responded to indicated treatment without change of diet, occupation, domicile or sanitary environment.

The conclusions set forth above are the results of the research of Alessandrini and Scala, of the University of Rome. These investigators published their preliminary note in May, 1913, and it was translated into English by the writer and published in Bulletin 1 of the Eclectic Medical University at Kansas City. Their completed monograph on pellagra was published at Rome early in the summer of 1914.

The writer has the personal letter from Professor Alessandrini, bearing date of May 10, 1914, announcing the coming publication of the completed monograph and requesting its translation and publication in English. As soon as the monograph was published, Professor Alessandrini forwarded two copies. This monograph contains 176 pages. It is handsomely illustrated. We have over half of it translated.

One of the most striking things in this monograph is the parallel comparison of

experimental and human pellagra. This we have translated and give below in full.

Symptomatology of

Human Pellagra	*Intoxication with Silica*
Onset of the disease, slow, progressive, only rarely has a rapid course.	Onset of the disease, slow' progressive, only rarely has a rapid course.
Walk uncertain, slow.	Walk torpid.
Presence of symmetrical erythema, with frequent formation of scars and sores.	Symmetrical depilation; erythema, with formation of scars and sores.
Epidermic desquamation in large scales.	Epidermic desquamation in scales more or less large, thin, clear.
Skin desquamated, thin, clear, brownish-red, for the most part atrophic.	Skin desquamated, thin, clear, reddened, for the most part atrophic.
Presence of telangiectasic spots.	Presence of telangiectasic spots.
Tongue with desquamated spots.	
Eyes open, clear, weak.	Eyes open, clear, weak.
Thirst insatiable.	Thirst sometimes insatiable.
Loss of appetite, or else immoderate hunger.	Loss of appetite, or else hunger.
Diarrhea.	Diarrhea, sometimes bloody.
Pruritus.	Pruritus.
Tremors of the upper limbs and the head.	Tremors of the fore limbs and the head.
Fibrillar contracture.	Fibrillar contracture.
Reflexes exaggerated.	Reflexes exaggerated.
Hyperesthesia, overexcitation.	Hyperesthesia, overexcitation
Depression.	Depression.
Squatting position, with flection of the thighs on the chest and the head inclined.	Squatting position, with flection of the thighs on the chest and the head inclined.
Spastic paresis in the prevalence of spastic paraparesis.	Spastic paresis in the prevalence of spastic paraparesis.
Paralysis of the lower limbs.	Paralysis of the hind limbs.
Hyperthermia.	Hyperthermia.
Oliguria.	Oliguria.
Albuminuria and indicanuria.	Albuminuria and indicanuria.
Concomitant ocular affections.	Concomitant ocular affections.

Pathological Anatomy of

Human Pellagra	*Intoxication with Silica*
Predominance of muscular atrophy, of points of congestion and of hyperemia.	Predominance of muscular atrophy, of points of congestion and of hyperemia.
Cadaver emaciated.	Cadaver emaciated.
Thin panniculus adiposus.	Thin panniculus adiposus.
Musculature flaccid, atrophic.	Musculature flaccid, atrophic.
Heart flaccid, easily torn, pigmented.	Heart flaccid.
Liver for the most part congested.	Liver for the most part congested.
Renal hyperemia and turbid new swelling.	Renal hyperemia and turbid new swelling.
Stomach and intestine with the serosa hyperemic, with venous arborization.	Stomach and intestine with the serosa hyperemic, with venous arborization.
Thinness of the gastric walls, through atrophy of the muscular coats.	Thinness of the gastric walls, through atrophy of the muscular coats.
Thickening of the pyloric region.	Thickening of the pyloric region.
Stomach and intestinal tract distended, full of gas or of a frothy greenish-yellow liquid.	Stomach and intestinal tract distended, full of gas or of a frothy greenish-yellow liquid.
Gastric mucosa hyperemic, congested, marked with hemorrhage.	Gastric mucosa hyperemic, congested, marked with hemorrhage.
Intestinal walls thin.	Intestinal walls thin.
Intestine of moniliform appearance.	Intestine of moniliform appearance.
Mucosa of the duodenum and of the small intestine covered with mucus, with hyperemic and hemorrhagic zones.	Mucosa of the duodenum and of the small intestine covered with mucus, with hemorrhagic zones, and extensive hyperemia.
Large intestine with ulcerated mucosa.	Large intestine sometimes with ulcerated mucosa.
Peyer's patches edematous, swollen.	Peyer's patches sometimes edematous, swollen.
Hyperemia of the meninges and of the cortical substance of the brain.	Hyperemia of the meninges and of the cortical substance of the brain.
Opacity of the membranes.	Opacity of the membranes.
Cerebral substance easily ruptured, edematous.	Cerebral substance easily ruptured, edematous.
	Marrow of the long bones brownish-red.

The prophylaxis, or, more properly, the prevention of pellagra is very simple and consists in the treatment of water-reservoirs with broken limestone.

Treatment of Pellagra, with Clinical Illustration

The treatment of pellagra as an acid intoxication is the provision of proper alkalinity. For this purpose, trisodic citrate (sodium citrate) is recommended as the best. One cubic centimeter of a 10-percent solution is injected intramuscularly in the gluteal region. These injections are made daily at first and later at longer intervals. Usually there will be about one-half as many injections as there are days elapsing during treatment.

Further to illustrate the diagnosis and treatment, we translate again from Alessandrini and Scala, giving case No. 7 of their series:

"Tini Annunziata, widow of Giovanni, living in Gualdo Tadino, division of Grello, region of Broccaro, age 46 years. Was a pellagrin for about ten years. Gastrointestinal disturbances predominated, and every year had the classical vernal erythema only in the form of a gauntlet. There was here no place for treatment, and no attempt had been made to alleviate her suffering with medicines. She had always lived and worked as a country woman in the country where she now resides. She has borne 13 children, of whom only 5 survive; has never aborted, has never suffered from sickness worthy of note.

"The principal symptoms which she presented at the beginning of treatment were the following: Grave loss of appetite; marked sense of weakness, accompanied by a vague pain in the abdomen, especially in the epigastrium; also, muscular pains, which did not permit her to work and prevented her lifting even very light weights and wearied her at once if she tried to walk. The tongue was denuded of epithelium and covered with deep fissures; the lips were whitish and denuded of epithelium, especially at the corners; the eyes were tense, lucid; the patellar reflex was exaggerated; there was tremor of the hands. The skin of the back of the hands and of the lower part of the forearms was pigmented, dark, furrowed with whitish streaks, thin, shining.

"Commenced the injection of 1 Cc. of 10-percent trisodic citrate on the 27th day of March and continued (except for a short interruption from the 16th of April to the 5th of May) to the 28th of May.

"From the first injections, commenced to show Improvement, as the gastric and muscular pains diminished and the appetite returned. After 10 injections, said she felt stronger and that her knees no longer gave way; in the morning, she arose from bed refreshed and no longer experienced the sense of weariness which had tormented her before. Could lift without weariness of weight; had greater resistance to fatigue. Also her spirits were much improved, the hope of cure returned and with it a good humor and appetite.

"The improvement ran a progressive course, and when the injections were suspended there was no disappointment, since, in a short time, we saw almost the total disappearance of the disturbances present uninterruptedly for so many years.

"The duration of the treatment was 63 days. The number of injections were 34. Dynamometry: right, from 14 kg. to 19 kg.; left, from 14 kg. to 18 kg. Her weight increased, from 46 kg. to 47.2 kg.

"There was in this patient a disappearance of the subjective symptoms and an increase in strength and weight. The erythema appearing constantly and periodically for ten consecutive years did not return in the summer of that year, nor the next."

As a result of this research, the etiology and treatment of pellagra are placed upon a sound, rational, and scientific basis. Prevention is simple, cause no longer obscure, and treatment within the means of every practitioner.

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An Old Doctor's Life Story

An Autobiography

By ROBERT GRAY, M. D., Pichucalco, Mexico

EDITORIAL NOTE.—Last month we began the publication of this autobiography, which in every respect is distinctly unusual. It is not the usual trite story of medical successes, but rather an intimate record of the unfolding of an unusual life. Doctor Gray was born in the Old South, was educated in France under the old regime, fought through our Civil War on the Confederate side, and soon after plunged into the very depths of tropical Mexico, where he spent his life. We promise you in this series one of the most interesting stories it has been our privilege to offer.

[*Continued from page 128, February issue*]

AT LAST came the time for me to go to France to study medicine, and though I pleaded against it, my father was inflexible. Hence, I struggled with the requisite studies almost sleeplessly. The wonderful start my kinswoman and uncle had given me rendered the preparatory studies both simple and easy, my memory being toned to an incredible degree. Early one day my Latin professor found me lounging in the library, reading a book I fancied. He accosted me abruptly: "Robert, why are you not studying your Latin lesson?" "I know the lesson, sir," was my laconic reply. "Come with me;" and he conducted me to his private office, to put me through a crucial test. At the end he said: "Whenever you are thus master of your lesson, employ the other part of the studying-time as you like."

What I had learned at home and the extensive general reading I had industriously pursued obviated the almost maddening difficulties that I saw others struggling to overcome; and this has since satisfied me that such early training has a value above any money price when any student enters any college. The time I was able to filch from actual study enabled me to acquire quite a store of knowledge from the treasures of the library, that was serviceable in front of my French professors many times; they assuring me that most American students were very indifferently read and had mastered their preparatory studies imperfectly, often in such a small degree as to possess little helpful value.

Time, that hastens all toward eternity, called the hour for me to sail over the Atlantic; and I embarked the same as others who

go abroad in quest of whatever fancy or necessity prompts them to seek.

Gay and Mystic Paris

Something magnetic clusters about the luring halo of memory that reverts to Paris tonight, and holds me spellbound in the magic mystery of a beautiful dream, whose gilded enchantment has vanished.

I had a wildly furious voyage on the storm-swept Atlantic, immune from sea-sickness, which I was told no other passenger escaped. I reached my lodging, in the Rue St. Dennis, in the darkness of a drizzly night, and found my quarters in the upper story of a building regarded tall in those days of 1850. The wind arose in the night and dissipated the fog and clouds. I awoke after a refreshing sleep, to find the world aglow with resplendent beams of limpid sunshine, unable to recall a morning in all my life when I was in bed at sunrise; and I saw, from my lofty room, what flits in my haunted memory tonight as pantomimic Paris, in the veritable reality of glorious magnificence, the view not reaching the slums of squalor and wretchedness, overbrimming in Paris in that now distant age.

I had my rooms and meals in the same house, far more desirable than in the first hotels, with the internal quiet of a private family; the arrangement having been made by a Frenchman living in New Orleans.

Getting a Medical Education

I was the bearer of letters to Doctors Blanche pére and Henri Roger, of the hospital for sick infants, and to Doctor Hipolyte Hérard, former president of the Academy of Medicine and honorary physician of the Hotel-Dieu, who were requested to put me into the best channels of practical study. They all gave me a most cordial reception, because, I suspect, the letters I carried them recommended me to their attention in a higher degree than I deserved.

I expected, naturally, to be placed in the best college; but they advised private instruction; attendance at lectures; clinics; hospital observation, especially at the hospital of charities, where I might soon get an elaborate insight into the extensive treatment of promiscuous diseases—lessons no college in France could remotely approximate—while I could learn all there was of infantile medication, at the hospital for sick infants, from Doctors Blanche pére and Henri Roger, and their assistants; Doctor Hipolyte Hérard guiding me in the way to all needful surgical knowledge, in the meanwhile. These men assured me that, besides all just stated I should have annual visiting-tickets to the best hospitals, where I should meet startling scenes of which I never should read in text-books nor hear of in any college. I was informed that such valuable service would not be gratuitous, but that it would cost no more than the regular collegiate courses, with the helpfulness they would cheerfully lend me.

I accepted their proposition with spontaneous alacrity and went about the performance with unbridled will, less than a month being required to have every feature in perfect working order, thus enabling me to learn in another month what I never could have learned as practically in college. The truth is, that I started where a college graduate would be fortunate to begin, on the very threshold of a practicing student. While I was not actually practicing, I was seeing the practical work in process and hearing it fully explained—lessons too impressive to be readily forgotten, as those read from books or heard from the lecture platform.

I had the best of advice and all necessary warning against the perils that beset the innocents from abroad, footloose amid the sharks and vampires of Paris; which I was assured would be much less than if I was blended with dissolute students in a college; as my unavoidable instructive companions would all be men strenuously laboring during long hours of exacting servitude, whose positions depended on propriety and rectitude of life when off duty—certain never to attempt to mislead me—some one of whom I might invite to accompany me when I wished to go to the theater or elsewhere.

I was thus domiciled and located in Paris to remain four years, yet, with tasks outlined to occupy all that seemingly long lapse of time, with the certainty that I should have to pass a rigid examination, in order to gain a high-grade diploma, that no mere collegiate courses could attain; but I felt confident I could effectually master all lessons set for me to learn.

As progressive science has rendered most of what I learned there obsolete, even modern surgery having outstripped the best practice of that day, I shall not attempt to detail the elaborate magnitude of my studies, reserving such space wherein to portray the subtle insinuation of modern medicine, that has superceded the practice I there learned, in a degree that it now has none but a comparative clinical value. Such comparison will be

presented when I come to tell the reader how I became switched off from the old to the new practice, and the part my early friends in Paris took in my radical conversion.

Doctor Henri Roger was visiting doctor to the hospital for sick infants when I arrived in Paris, but was permanently installed in the venerable institution during my period of probation; and both he and Doctor Hipolyte Hérard exercised an indomitable influence over my course of proselyting, from their early teaching to *improved galenic medication*, which will be elaborately outlined in its time and place.

Why This Story Is Told

Should this essay realize even a very limited fraction of its primal object—lend a dim ray of guiding light to a very few rural practitioners, who have not possessed the precious advantage of profound instruction in the widely varying ramifications of critical medicine nor the startling experience of the hospitals of Paris, a big slave plantation among feverish bogs, the horrors of the Confederate army, and the sickliest tropical belts of the continent, filtered into more than three-score years—such object might be most effectively facilitated by a liberal illustration of the help and influences that impelled me to become master of whatever useful knowledge I may have acquired.

Possibly I am pondering boldly, maybe extravagantly. Yet, I am able to contemplate serenely the arduous task I have assumed. For my own part, left alone to myself, unsolicited by men who scientifically rank high above me, no page of this ever would have been written. Maybe I too much underestimate what I should be able to do. Yet, while I have not nearly approached the personal features most painfully pathetic, sharp unbidden pangs piercing as the scorpion's sting have thrilled my long apathetical sensibility when I saw "sister's" and "sweetheart," flung on the page beneath my pensive eye; and I felt the sterile wells of my heart, so long sapped by dry sorrow, troubled as if they fain would start the sullen tear. But too much of this. Let it pass. It may be I deserve the pain, if such there be. Or is it that dotage has deeply merged into the pusillanimous driveling of second childhood? The amiable Doctor Osler would have electrocuted me more than a score of years ago; yet, here I am, still coquetting with phraseology, with but fifteen mile posts between me and the century line. And we shall see, as we progress, what measure of cogency may be conjured into practical array as there is subject-matter to formulate.

I presume that the reader may be wondering at the absence of the recounting of forbidden adventures in Paris. The truth is, that the house where I lived was so well ordered and eminently respectable that the very servant girls appeared to be paragons of virtue. And my first visit to the pest hospitals cured me effectively of all desire to go in quest of adventures among the demimonde. The first and most serious lesson inculcated by my friendly guardians was, to beware of intrigues with females of Paris; and such lesson was followed immediately by the visits to the pest hospitals, where the teaching was more than amply confirmed.

The Quintessence of Sweet Womanhood

A young woman of charming loveliness made long-protracted visits with my landlady, ever amiably friendly with me, frequently supping at my table, where we lingered after meals, alone, many a time, in animated conversation. Still, she never swerved from a rigidly correct prudence, in look, act or word, innocently manifesting, without a conscious effort, purity of mind and strength of heart. In a word, she was one of those rare women we sometimes meet, with whom it is impossible to associate a bare thought of clandestine relations, much less to insinuate a remote hint of any shade of informality; an eye that would transfix the libertine and droop his ogling gaze to the ground. I never knew anything definite about her, more than that she was not of Paris.

She told me nothing of herself nor of home; and my landlady never spoke of her after she had presented me to the subtle charmer. But this is not meant to imply that she had any design to charm me; for she certainly never indicated a mere dreamy thought of any such purpose. She seemed to have no male friends in Paris, or, at least, none such ever appeared when I was in the house. I have no idea what my landlady had said to the girl of me; but she could know nothing more than what her French relative wrote her from New Orleans, when advising her to hold my lodging prepared for me. I told the girl I was engaged at home, where I expected to marry some time. She never told me whether she had ever been the victim of Cupid or not.

But, at all events, she was a precious recreation to me, with her voluble, elastic French,

simply perfect in diction and clear as a soft clarion note, and a musical silvery laugh that lured one to linger after the hour to part. It seemed that she had read everything of leading interest and remembered the gist of every book. Certainly, hers was a precious friendship for a lonely wayfarer, far from kindred and home, in a strange land, lending a fine moralizing influence, tending to stay the impulse to stray in devious paths.

The very thought of her was cheering, as I mounted the long stairway to the six-o'clock dinner, after a day of arduous activity and scanty lunch, or none. And I often soliloquized, possibly unconsciously aloud, "Now Corinne will rest me!" And this was literally true. The faithful, generous girl, surely ignorant of selfishness, was almost ever there, ready to lend me the brightest hour I ever passed in Paris.

I am ashamed to confess that those sweet hours were not equally unselfish on my part; for they were the very quintessence of sordid selfishness, sought and enjoyed as mere recreative pastime, without the slightest recompensing compunction; which it were impossible even to think of rendering in filthy lucre, and which I was incapable of returning in reciprocative entertainment.

My landlady had been of the exclusive aristocracy; but her husband had perished under Cavaignac in the battles of the barricades of the Faubourg St. Antoine, some two years before I arrived in Paris; and the good lady quit the old home and took refuge in the house where I roomed, which was hers, and rented the apartments, and gave meals to a few, to support herself. Her kinsman was an exile in New Orleans in those stormy times.

The Influence of Corinne

The influence of Corinne has been a powerful leverage in my wonderful career; for she was really the guardian-angel of my Parisian life. Had she been frivolously indiscreet and voluptuously reckless, this page might never have been written. She could not have turned me from my course; but she might have eclipsed the brilliancy of my course of studies, with the opportunities she had to have lured me, if not to utter destruction, certainly to sheer neglect of my duty and the squandering of money to a degree that might have left me in the lurch, even with my father when he came to know that I had stumbled from the path of rectitude. But the influence of Corinne was diametrically the opposite. She demonstrated to me the transcendentalism of innocent purity, without preaching any sermons or uttering a single word in any religious strain. She talked of Voltaire, Rousseau, Shakespeare, Byron, Moore, and many others, as grand literary artists or painters, as the fancy struck her, but never a word about their faiths or negations.

She must have been a person of importance somewhere or someway, as she was elegantly dressed and wore superb jewelry, and was mistress of an education rarely approached by one woman in a thousand. I then fancied and still believe she was hiding from political pursuers; and that she was brilliantly social with me as a temporary surcease from some great sorrow she fain would hide from vulgar eyes. Were a true story of her life known, I verily believe it would be a Never-Told-Mystery of Paris.

Certainly, she made a saint of me as to female debauchery in Paris. Had I been the companion of a lewd woman, I should have faced as readily the accusing angel as those soul-searching eyes of Corinne, possibly gifted with a glint of second sight that would have unmasked my shameful lapse. When I bade her good night at the table, I went to my room to read restful, recreative literature from a library, declining invitations to roam abroad at night, having ample time to satiate my curiosity in Paris on Sunday, outside of where my rounds of the week led me.

Corinne was in the house when Louis Napoleon was the regal president and when the second empire was established; and she seemed to me pale and anxious on the last occasion, with which I did not then associate her seeming cheerlessness, no political word ever being uttered in the house. Some time after the empire was established I noted the headlines in a newspaper saying something about an amnesty. And when, two or three days later, I went to dinner, Corinne did not appear; and I never saw her again. I was as sincerely distressed at her disappearance as I might have been at tidings of the death of my father; yet, I said nothing, understanding that the subject was not discussable in that house.

My friendship with Corinne taught me a priceless lesson: that chastity does not prejudice either the health or reproductive organism of a busy man, which has served me admirable turns many a time since. After I recognized that this woman exercized a restraining influence over my impure passions, I began unconsciously, without an effort, to abandon both such meditation and

desire, never coming in contact with any luring temptation, certain not to cross my path in my rounds of activity by day, and far more remote in the house at night.

Two Women—A Contrast

I sit here spellbound, unable to write a line for an hour at a stretch, contrasting the antithesis between the seamstress in my father's house, esteemed worthy to be the companion of my mother and sisters, and Corinne, a fair and amiable stranger, in a public lodging- and boarding-house, worthy to sit incarnate among the seraphs around the throne of God.

Corinne had not been absent more than two or three months when I saw no more of my landlady, finding the housekeeper in charge when I went to pay my monthly instalment; and she never came again in my time; yet, the service of the house remained unchanged.

The longer and more profoundly I have studied sexual necessity, the more positive became my conviction that customary cultivation of the grand passion calls aloud for indulgence more urgently than any modicum of true requirement of distressed nature in man. That I did pass four years in the Babylon of Europe, where vice of all grades is a commercial commodity, with ever sufficient surplus pocket-money to have purchased any ordinate supply, is proof positive of the possibility of abstinence. That I lapsed regretfully at a later period, that will be told in its place, I do not now deny; though then due to comparative leisure and dissolute companionship, neither of which I ever had in Paris.

I have dwelt so tenaciously on an incident so trivial ordinarily as my meeting with Corinne, because her influence became so forcefully intertwined in the very fiber of my being that much of what I am tonight has been the propitious offspring of that subtle inspiration. And I want it recorded here to support other eventualities that should body forth to view long and weary years in advance of this rambling Parisian portraiture.

My Friends—My Helpers

To Blanche pére, Henri Roger, Hipolyte Hérard, and Corinne, I owed the rarest and richest treasure of medical attainment any American ever brought home from Paris since the period of 1860. With the adored and ever adorable Corinne, I must now part for all eternity. But those noble, deathless men, enshrined and embalmed in my ever grateful memory, who never abandoned me, not even in the hour of my darkest desolation, of them I shall never be silent till the final page of this memoir is moistened by my farewell tears!

When my father learned of the special pains those illustrious men had taken to facilitate my education, he sent them each a handsome gratification, such as they richly deserved, though I do not believe that it tended to stimulate their activity in my interest; for they were doing all possible before that manifestation of gratitude was proffered.

The Curriculum

I believe it would be a worthless waste of energy and space to outline an elaborate detail of my practical studies, as almost any reader will be familiar with lectures, clinics, and hospital routine, all of which have been improved as radically as the drug feature of medication itself. I had my book lessons to con over in the early morning, and heard questions appertaining thereto some time during the day; as well as saw practical hospital demonstrations, mostly in the Charité hospital, where there was ever a surging concourse of heterogeneous diseases daily treated from the dispensary, that were not admitted to the wards, which always were full. The rush of that early outside attention being over, the regular rounds were taken, a clerk or so being left in the dispensary to look after the late stragglers. There, in the great cheerless wards, daily opportunities were met to see the slow improvement or immediate decline of desperate patients, whose care and nourishment were less elegant than were to be seen in the best pay-wards of the Hotel-Dieu, yet, sufficient as objects of instruction to a young aspirant in quest of medical knowledge.

I was not initiated in the mystery of surgery for more than a year; and had the scholastic rudiments of anatomy well mastered ere I was brought in contact with practical lessons. I had my regular turns in dissecting-rooms, as well as being present at actual operations; and there were ever operations and operations of the surgery of that age in Paris, then equal if not superior to any other in the world. And I am now satisfied that that is the true process of learning surgery; for, seeing the arteries taken up a few times, in major surgery, creates a more memorable lesson than reading of it a hundred times, bloody work in quick anatomy being the most intensely impressive lesson ever taught to medical students. It prepared me effi-

ciently for the horrible work I later did in the civil war, and have been doing during these dark and murderous years down here in Mexico.

After the lapse of some two years, I was to the front in the dispensary practice of the Charité hospital, with the legitimate practitioner, I diagnosing and prescribing, the regular correcting or approving my conclusions. Thus I gradually left less and less errors to be supervised, and was finally, some time after three years had elapsed, entrusted with work not critically serious, for which I possibly was better qualified than most students are now when they leave college, with theory oozing from the tips of their fingers, yet, entirely ignorant of its practical application. I do not say this without substantiating proof; for I have had a number of newly fledged graduates, directly from college, with me in critical tropical practice—an experience I have sternly declined during the past fifteen years, and shall never repeat again. It does not seem strange to me that a young physician just from college, who is really nothing more than a practicing student, has an uphill job to establish a bare living-practice, which he has to learn before he is worthy to receive pay for his services.

The horrors of the venereal wards of the pest hospitals were too nauseating to portray within a dozen hours of meal-time; and I am just now from the supper-table. The depth of degradation to which depraved humanity can descend is too incredible for belief, without the tangible vision. I have never met between two covers of any book accounts to approach scenes I witnessed with my open eyes. The pitiful victims of masturbation presented an appalling scene; while the varied stages of syphilitic mutilation were better imagined than told. Truly the proverb "The way of the transgressor is hard" was there doubly told over anew and confirmed.

There was a deep, ominous, yet, publicly suppressed clinical discontent about drug deficiency, really amounting almost to the nihilism of this age, prevailing in the United States, the loftiest bright minds of that age having little stable faith in the efficacy of the medication in vogue, those who would survive without medical intervention recovering, while all others lapsed into dissolution, despite all the medical fraternity could do. But the failures were attributed to inert or worthless armamentariums, rather than to the incapacity of medical practitioners.

This unrest and incrimination were the brewings of the radical revolution that supervened a few years later, the veritable embryo being in active gestation in the University of Ghent ere I left Paris, although some eighteen years were required for the intrepid medical giant to launch his startling propaganda among the stale herb-shops of Paris, to create a commotion among the dry bones of chemistry. The surprise was welcomed by the medical fraternity of Paris, deeming anything better than what existed.

As all things else in this world, my four years in Paris came to an end, and I was adjudged competent to be the physician of a big slave plantation, surrounded by miasmatic swamps, a position in a high degree responsible, where my father and his associate kinsmen designed to sacrifice my ambition, or maybe they presumed I should have no higher aspirations. For that reason, I was sent to Paris instead of to West Point. And the worst of it all, the task was mine to establish the plantation, which was not to contain so much as a negro-cabin ere my return; yet, a huge interest was to be mine, a legacy or partnership I certainly never relished.

I left Paris to pass some months at New Orleans to study yellow-fever, pernicious fever, and breakbone-fever, which were ever present in the Louisiana lowlands, at the season I was to arrive there, against whose infection my affectionate kinsmen probably presumed the schools of Paris had rendered me immune.

(To be continued)

Cavia Cobaya: Medical Martyr

The Guinea-Pig, and What We Owe Him

By B. G. R. Williams, M. D., Paris, Illinois

[*Concluded from page 54 January issue.*]

THE uses to which the cavy may be put in research-work are many, but would scarcely interest the average reader. I rather shall consider its importance in routine diagnostic studies.

Recourse is had to the cavy in the matter of fresh complement for the complement-fixation serosyphilitic tests. An assistant picks up the animal by its hind legs and holds it head downward. With the free hand he seizes the front feet and head and holds them in such a manner that they do not interfere with the operation. The operator plucks some hair from the neck and pushes a sharp, narrow scalpel through the neck anterior to the trachea. The cutting edge is turned out in such a manner as not to cut the trachea. Then the large vessels of the neck are incised. The blood is collected into tubes through a sterile glass funnel. A large amount of the blood may be secured if the chest is squeezed. Tubes should not be centrifugalized, but placed slanted on ice. Some hemolysis is likely to take place when centrifugalized, although the latter process saves time. Of course, this procedure means a dead cavy, but enough complement may be secured for several tests. Even when kept on ice, complement loses much of its activity after twenty-four hours, and other guinea-pigs must be bled if additional tests are to be set up.

In suspected tuberculosis of the kidney, it often is advantageous, when symptoms are vague or when the specific bacilli can not be found in smears, to inoculate the cavy. This procedure is attended with less difficulty than is generally supposed. Catheterization, usually advised, is more likely to contaminate the urine than to secure it sterile for this purpose. I usually follow the technic advised by Stitt. The glans penis and meatus should be thoroughly washed with soap and water, after which 40 percent alcohol should be used. The greater part of the urine first passed is rejected and only the last portion caught in a sterile centrifuge tube. The last few drops are avoided, because the muscles surrounding the urethra, when contracting to express the last few drops, are likely to loosen the contents of the glands. The specimen is centrifugalized and the sediment injected into the animal. Hold it as advised above; animal-holders are not needed.

After plucking out the hair, it is best to clean the skin with soap and water and then with 50-percent alcohol, inasmuch as strict asepsis is imperative. The intraperitoneal injection is the one usually described. The needle should be introduced at the edge of the umbilicus. After three weeks, the guinea-pig is killed and autopsied, the peritoneum and mesentery being carefully examined for tubercles. These may be sectioned, in case of question. Pyococcus infection may kill the animal within a few days after inoculation. In other instances, autopsy may demonstrate miliary tuberculosis of an acute type.

Recently Bloch has devised a special technic for the subcutaneous inoculation. He injects a cubic centimeter of urine into the thigh of the cavy, massages toward the inguinal glands and pinches these somewhat to injure them and lower their resistance. These glands may be removed after ten or twelve days and examined for tuberculosis by means of smears or sections, or both. This gives us a very rapid method of precise diagnosis in regard to tuberculosis of the kidney. It has been proposed to try tuberculin reactions on the inoculated cavy. These, however, are unsatisfactory as well as unnecessary.

The same inoculation methods can be used in the case of suspected tuberculous exudates, more rarely of the sputum, inasmuch as contamination is almost inevitable and the cavy is very susceptible to mouth bacteria.

Of course, the cavy may be used in the isolation and identification of other pathogenic bacteria. As a matter of fact, the animal is rarely called upon to do so in routine diagnostic work. In college laboratories, it is used in the diagnosis of typhoid fever, pneumonia, hog-cholera, and so on. The male is used in the Straus reaction for glanders.

Several points may be kept in mind when working with cavies in laboratories or demonstrating them before medical societies. If once loosed on the floor, there are not likely

to be enough persons present to catch one of them. Finally, the cavy will not bite. I well remember the first one I received by express after coming to Paris. The expressman held the box at arms-length, his hands well protected by gloves. When he set it down, he sighed deeply and long. Then he rubbed some sweat from his forehead and produced his bill, with the significant remark: "Well, doc, here's your rat!"

The Physiologic Action of Emetine Hydrochloride

By CARL NIELSEN, Ph. C., Chicago, Illinois
Pharmacologist, The Abbott Laboratories

IT seems to be a clinical fact that emetine stops hemorrhage, but very few investigators have attempted to explain the hemostatic properties of this alkaloid. In fact, Maurel is the only one who has given a definite explanation of the mode of action of emetine when administered in therapeutic and toxic doses (*Bull. d'Acad. de Med. de Paris*, Mar., 1914; c.f. this journal, February, p. 136), and his experiments led him to conclude that the effect of therapeutic doses of emetine hydrochloride is owing mainly to its action upon the smooth muscular fibers, which it contracts. Maurel also concludes that its hemostatic properties are the consequence of this contraction of the smooth fibers in the blood vessels; or, in other words, that emetine is a vasoconstrictor.

Maurel's experiments, made upon eels, frogs, pigeons, and rabbits, further have shown him that emetine, in gradually increasing doses, affects the sensory nerves, motor nerves, striated fibers, and cardiac fibers; and that these actions fully explain the long-known properties of ipecac as a decongestant, antiphlogistic, and defervescent besides, perhaps, as an abortive.

Furthermore, he comes to the just conclusion that the use of emetine is to be preferred to that of ipecac in all cases where the latter has been employed—with one exception; namely, as an emetic. It is a well known fact that emetine is much less emetic than is ipecac and that the emesis induced by the latter is mainly brought on by cephaeline, the second alkaloid of the root.

The following experiments were undertaken chiefly in the attempt to learn how emetine acted as an antihemorrhagic. At the same time, naturally, its action as an emetic was observed, and an endeavor made to discover whether this latter action was the result of local irritation of the gastric musoca, as assumed by some investigators, or a direct effect upon the central nervous system, as maintained by others.

The emetine hydrochloride employed for these experiments contained only a trace of cephaeline, as proven by accurate tests.

Influence of Emetine Upon Arterial Pressure

Factors of the experiments detailed herein:

EXFERIMENTS SERIES I

Test employed: blood pressure. Animals used: dogs. Solution for testing: emetine hydrochloride in physiologic salt solution 1 : 100.

Dog. No. 113; male; weight, 24 pounds.

Anesthetic: 35 Cc. of trichlorbutylalcohol of 10-percent strength, injected intraperitoneally.

The carotid artery was exposed and connected to the mercury-manometer, and the lever of this instrument adjusted to the kymograph, in the usual way. The injections were made into the saphenous vein.

Amount of emetine hydrochloride injected: Gm. 0.01 (therapeutic dose).

Result: Blood pressure decreased very slightly at first, then increased to a trifle above normal. Five minutes after injection, blood pressure was again normal, while the rate of the heart beats gradually decreased during the following two hours. (See tracing No. 1.)

Dog No. 115; male; 17½ pounds.

Anesthetic: 25 Cc. of trichlorbutylalcohol, 10-percent.

The dog was prepared in the same way as the preceding one.

Amount of emetine hydrochloride injected: 6 successive doses of Gm. 0.02 (toxic dose).

Result: The first injection of 0.02 Gram of emetine hydrochloride produced an effect similar to the injection given dog No. 113. There was first a very slight fall and then a very slight rise in the blood pressure, and a gradual decrease in the rate of the heart beats. However, as a result of the larger dose,

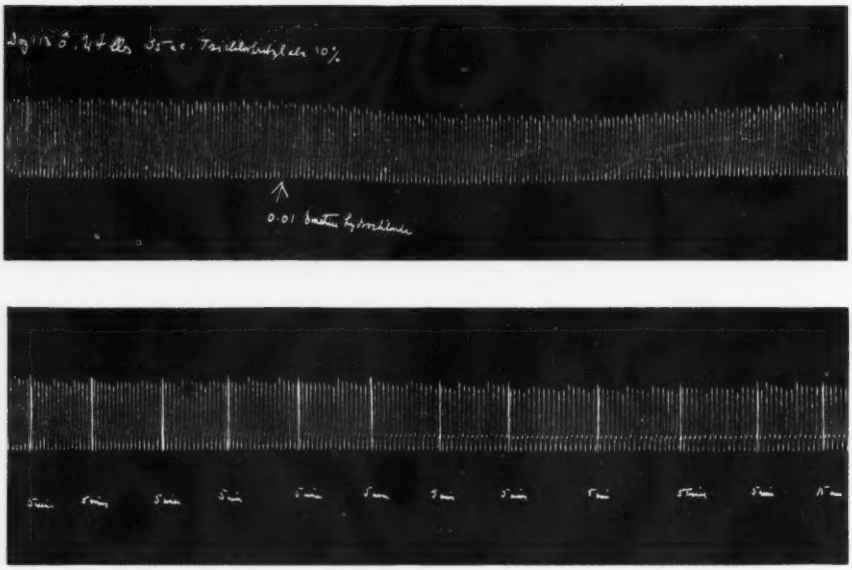

Fig. 1. These two cuts are parts of the same tracing. They show no noteworthy modification of blood pressure.

these features were more pronounced. Twenty minutes after this first injection, the blood pressure was again normal. Now a second injection of 0.02 Gram of emetine hydrochloride was given. The results of this injection were similar to those of the first. Twenty-minutes after this second injection, a weakening of the heart was evident, and the rate of the heart beat had decreased considerably.

A third injection of 0.02 Gram of emetine hydrochloride, therefore, did not produce any appreciable change in the blood pressure, but acted simply as a paralyzant of the cardiac muscle. Three other injections were made at 15-minute intervals. With each injection, the weakness of the heart muscles increased, and two hours after the first injection the auricles were beating very faintly, and there was only one ventricle-beat to eight of the auricle-beats. Later, the ventricles stopped entirely, the auricles continued to beat for two or three minutes, and then also ceased. Postmortem examination showed the heart stopped in diastole. (See tracing No. 2.)

Dog No. 110; male; weight 22 pounds.

Anesthetic: 30 Cc. of trichlorbutylalcohol. 10-percent.

Amount of emetine hydrochloride injected: 0.066 Gram (toxic dose).

Result: Blood pressure fell 11 mm., then during the next five minutes gradually rose until it was 5 mm. above normal; however, it returned promptly again to normal. Thereafter, the blood pressure gradually decreased, and at the end of two hours was 16 mm. lower than at the time of injection. The rate of the heart beats had decreased gradually at the same time, and three hours after the injection it was only 50 percent of the normal. The dog died under the same symptoms as dog No. 117. (See tracing No. 3.)

Dog No. 111; male; 20 pounds.

Anesthetic: 30 Cc. of trichlorbutylalcohol, 10-percent.

Amount of emetine hydrochloride injected: 0.033 Gram (toxic dose).

Result: Same as with dog No. 110. (See tracing No. 4.)

As a result of these experiments, it may be said that emetine given intravenously in therapeutic doses produces practically no effect upon the arterial blood pressure; toxic doses act directly upon the heart-muscle, which they paralyze. The heart stops in diastole.

Thus the hemostatic effect of emetine can not result from any action upon the arterial blood pressure.

Influence of Emetine Upon Blood Elements

It was now suggested that emetine might act upon the different constituents of the blood; the erythrocytes, leukocytes, and the blood-platelets.

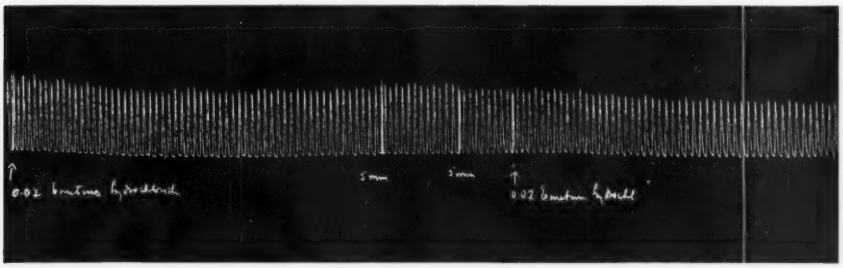

Fig. 2. This small section from the tracing shows the increasing weakness of the heart under toxic doses of emetine. Death of dog followed after six injections of 0.02 Gm. each.

It is generally accepted that the proportion of blood-platelets determines the coagulability of the blood, and the suggestion was to the effect that emetine, by increasing the number of blood-platelets, and consequently the coagulability of the blood, might thus act as a hemostatic.

The following experiments were made to ascertain whether this was the case.

Experiments Series II.

Animals used: rabbits. Solution for testing: emetine hydrochloride, in physiologic salt solution, 1:100.

Method of procedure: The number of erythrocytes, leukocytes, and blood-platelets was counted before and after the injection of emetine hydrochloride. The blood was taken from the ear. The injections were made intravenously into the ear. In counting the leukocytes and erythrocytes, the usual technic was followed and the Thoma-Zeiss hemocytometer used. At least three counts were made for each specimen of blood taken. The number of blood-platelets was determined as follows:

A small area of the rabbit's ear was shaven and cleansed with alcohol. After complete evaporation of the alcohol, the area from which the blood was to be taken was rubbed with sterile liquid paraffin; then one drop of a 10-percent solution of sodium-metaphosphate was applied to the point at which the needle was to be introduced, and a needle was pushed through this solution and the skin into the vein. The out-flowing blood mixed immediately with the sodium metaphosphate solution, and small portions of this fluid were collected on different slides and smears made in the usual way.

After air-drying these smears, they were stained with Jenner's or Wright's solution. The blood-platelets appeared as round or oval, light-bluish bodies, about one-third the size of the red blood-corpuscles. The number of platelets was determined by its proportion to the number of erythrocytes, previously counted. A large number of counts had to be made of each specimen, to ascertain the approximate number of the platelets. It is, indeed, a task involving great care, exactitude, and patience to obtain comparative results of value.

Rabbit No. 1; weight, 1242 Grams.

Leukocytes before injection, 11000 per cmm.

Erythrocytes before injection, 6,000,000 per cmm.

Blood platelets before injection, 265,000 per cmm.

Dec. 1, 4:30 p. m., injected 0.0045 Gram of emetine hydrochloride.

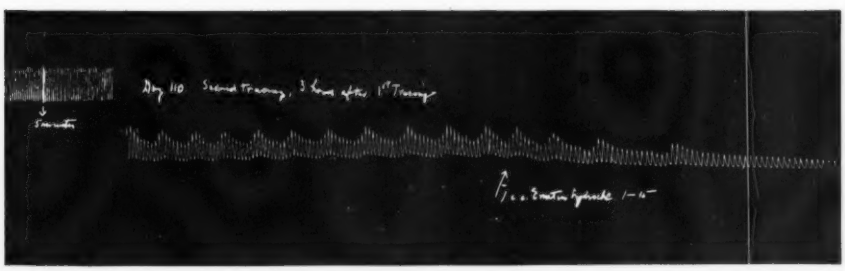

Fig. 3. Dog No. 110 was also given a toxic dose of emetine (0.066 Gm.). This section of the tracing, taken three hours later shows the terminal cardial paralysis following.

Dec. 2, 9:15 a. m., blood-count made. No change. Injected 0.0045 Gram of emetine hydrochloride. Blood-count made at 1:45 p. m. No appreciable change. Injected 0.0045 Gram of emetine hydrochloride.

Dec. 3, in the forenoon, blood-counts again were made. No change. Injected another 0.0045 Gram of emetine hydrochloride. Blood-counts made in the afternoon showed no change.

Dec. 5, injected 0.006 Gram of emetine hydrochloride (equivalent to 0.0027 Gram per kilogram body-weight). The animal showed no visible symptoms.

Dec. 6, in the morning, blood-counts were made again, but there was practically no change in the numbers of the different constituents.

Rabbit No. 2, weighting 1815 Grams, and rabbit No. 3, weighing 2500 Grams, were treated in the same way.

There was no change in the physical composition of the blood, as a result of the emetine injections.

Influence of Emetine Upon the Coagulability

In order to ascertain, further, whether or not emetine increases the coagulability of the blood, the following experiments were conducted:

Experiments Series III

Animals used: dogs. Solution for testing: emetine hydrochloride in physiologic salt solution, 1 : 100.

Method of procedure: A dog, weighing 20 pounds, was prepared as for blood-pressure test mentioned above.

Before the injections of emetine were given, different specimens of blood were taken in the following way:

Sterilized capillary glass tubes (approximately 3 inches long) were filled with the fresh blood, by introducing them into the carotid artery. The time was recorded. The room in which these tests were conducted was kept at a constant temperature of 20° C. Every ten seconds about ¼ of an inch of each of the filled tubes was broken off and as soon as the first blood fibre appeared at the breaking-point, the time was recorded. The interval between the taking of the blood and the appearance of the first fiber was considered the time of coagulation.

After having established an average period, as a result of several blood samples tested, 0.01 Gram of emetine hydrochloride was injected intravenously into the dog.

Five, ten, twenty and thirty minutes, respectively, after this injection, specimens of blood were taken again, in the same way, and the time of coagulation noted.

This experiment was repeated with two other dogs, but in neither case could any appreciable change in coagulability of the blood be determined.

Thus, it is evident that emetine, in therapeutic doses, influences neither the number of blood-corpuscles or blood-platelets nor the coaguability of the blood.

As these experiments failed to explain the antihemorrhagic action of emetine—so thoroughly proven clinically—it occured to me that possibly it may act mainly upon the capillary circulatory system, producing sufficient vasoconstriction in those vessels to stop hemorrhages.

Experiments Series IV

To determine this question, the following experiments were undertaken.*

A series of six frogs were anesthetized with ether and the intradigital membrane of the left hind leg was stretched out for observation under the microscope; the membrane being kept moist with Ringer's solution during the entire experiment. The frog was left five to ten minutes after the ether had taken effect, in order to allow the circulation to become regular and normal.

The rapidity of the circulation in a series of capillary blood-vessels in a chosen field was now closely and carefully observed; also their lumen. Then ½ Cc. of a 1 : 1000 solution of emetine hydrochloride in physiologic salt solution was injected into the abdominal lymph-sac.

Influence of Emetine Upon the Capillaries

In all the experiments, the same results were obtained. Five minutes after the injection had been made, the circulation in the smaller capillaries became slower; in another ten minutes, the decrease in the rapidity of the flow of blood in the smaller capillaries was considerable, while that in the larger capillaries was noticeable; and during the next thirty minutes the rapidity decreased gradually, until it stopped completely in most of the smaller vessels, and became so slow in the larger ones that each blood-corpuscle could be distinctly followed on its course. It also

*After these experiemnts had been performed, I found, in reading up the literature on emetine, that Maurel, in his investigations, had already in 1901 and 1902 used the same method of procedure as I had adopted, in his attempt to explain the decongestant action of emetine; and that M. Chauffard, in his criticism of Maurel's paper on the therapeutic and toxic effects of emetine (Soc. Biol., Mar. 24, 1914) states that, as a result of his clinical experience, he considers emetine to act as a vaso-constrictor, limited, however, to the capillary system:

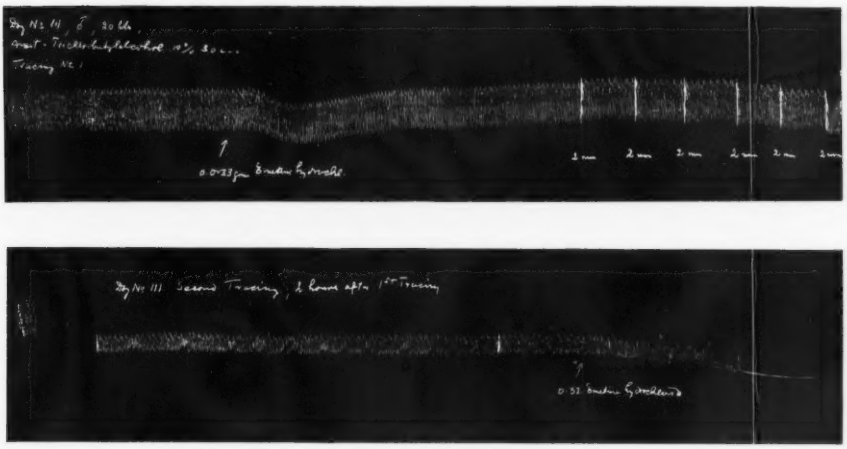

Fig. 4. Dog No. 111. A toxic dose (0.033 Gm.) of emetine hydrochloride was administered. Paralysis of heart, with death resulting.

could plainly be seen, without the aid of a micromillimeter-scale, that the capillary vessels had been contracted. In a few instances, the dose was repeated, and this, of course, produced a more rapid effect. The effect lasted more than an hour, after which the rapidity of the circulation gradually rose to normal again. All the frogs recovered.

This experiment is so beautiful that it cannot be too strongly recommended to the students of pharmacodynamics as a demonstration of the effects of emetine. It leaves no doubt as to its action as a vasoconstrictor; that, however, this effect is limited to the capillary system, is obvious from the results of the blood-pressure tests.

Therapeutic doses of emetine decreased the rate of the heart-beat, but failed to affect noticeably the blood pressure; while toxic doses dilated the vessels, thereby making the blood pressure fall, at the same time decreasing considerably the rate of the heart beats by paralyzing the heart-muscle.

After arriving at the foregoing results, I thought that possibly emetine might cause a reaction in the cock's comb. Consequently, three white leghorn roosters, weighing between 1500 and 1600 Grams, were given injections of, respectively, 0.001, 0.002, and 0.003 Grams of emetine hydrochloride into the breast-muscle. However, I Could not observe that any visible effects were produced, and the method was therefore abandoned.

Experiments Series V

I now proceeded to determine the M. L. D. (minimum lethal dose) of emetine hydrochloride when injected intravenously into dogs and rabbits, watching closely the symptoms produced by the different doses.

In the dogs, the injections were made into the jugular vein; in the rabbits, into a vein in the ear. All injections were given by means of a Hitchen's syringe when the animal's stomach was empty.

The M. L. D. of emetine hydrochloride injected intravenously, therefore, is to be estimated at 0.005 Gram per kilogram body-weight for dogs.

DETERMINATION OF THE M. L. D.

Dog	Sex	Weight	Total Dose	Dose per Kilogram	Result
No. 123	Male	Gm. 13,400	Gm. 0.03	Gm. 0.0022	Vomited once—35 minutes after injection.
No. 131	Male	Gm. 12,000	Gm. 0.03	Gm. 0.0025	Increased salivation; nausea; vomiting 40 minutes after the injection; muscular weakness; decrease of temperature; slowing of pulse; dog recovered.
No. 132	Male	Gm. 12,000	Gm. 0.036	Gm. 0.003	Same; vomiting occurred earlier.
No. 133	Male	Gm. 14,000	Gm. 0.056	Gm. 0.004	Same as preceding.
No. 134	Male	Gm. 12,000	Gm. 0.06	Gm. 0.005	Vomiting occurred 10 minutes after the injection and was very violent and frequent for two hours; pronounced muscular weakness and slowing of pulse. Died next day.

Hence, the M. L. D. of emetine hydrochloride per kilogram body-weight of rabbit, when injected intravenously, must be considered as approximately 0.0038 Gram.*

Rabbit	Weight	Total Dose	Dose per Kilogram	Result
No. 1	Gm. 1995	Gm. 0.00498	Gm. 0.0025	No visible symptons.
No. 2	Gm. 1995	Gm. 0.00558	Gm. 0.0028	No visible symptons.
No. 3	Gm. 1975	Gm. 0.00592	Gm. 0.003	No visible symptons.
No. 4	Gm. 1300	Gm. 0.0039	Gm. 0.003	No visible symptons.
No. 5	Gm. 1545	Gm. 0.0054	Gm. 0.0035	No visible symptons.
No. 6	Gm. 2000	Gm. 0.008	Gm. 0.004	Died after three minutes, under a few convulsions, from a central paralysis. Postmortem examination showed no abnormalty of the organs. The heart stopped in diastole.

To determine whether a toxic dose of emetine given to rabbits by the mouth would produce vomiting or other visible symptoms, rabbits No. 1 and No. 2, after a complete recovery from the intravenous injections, were in that way given, respectively, 0.003 and 0.004 Grams per kilogram body-weight, of emetine hydrochloride, in a 1 : 100 solution. No symptoms occurred. It is interesting to note that even high toxic doses injected intravenously did not produce appreciable symptoms in rabbits, either; not even the appetite was affected.

Maurel (Soc. Biol., 1901, 1902) has determined the M. L. D. of emetine hydrochloride when given by mouth and when injected subcutaneously, for the eel, frog, pigeon and rabbit. He considers the M. L. D., subcutaneously and by mouth, for a rabbit to be 0.15 per kilogram. It is intended to repeat these experiments.

Experiments on the Emetic Action of Emetine

Finally, a series of dogs were treated with therapeutic doses of emetine hydrochloride, injected subcutaneously, ranging from 0.0005 to 0.0015 Grams of emetine hydrochloride per kilogram body-weight. In no case were there any appreciable symptoms; vomiting did not occur. These doses as well as all the following were given when the animal's stomach was empty.

Higher doses (from 0.0025 Gram up) produced vomiting in dogs when they were administered either subcutaneously or by mouth.

Experiments Series VI

Dog No. 144; male; weight, 15,000 Grams.

Dose: 0.0025 Gram emetine hydrochloride per kilogram body-weight, subcutaneously.

Result: Vomited fifty minutes after injection, and again one hour after injection. Recovered.

Dog No. 145; female; weight 11,300 Grams.

Dose: 0.0025 Gram emetine hydrochloride per kilogram body-weight, in a 1 : 100 solution by mouth.

Result: Vomited fifty minutes after the dose, and again two hours later. Recovered.

Dog No. 146; male; weight, 15,400 Grams.

Dose: 0.005 Gram emetine hydrochloride per kilogram body-weight subcutaneuosly; given at 10:35 a. m.

Result: Vomited at 11:15, 11:30, 11:45 a. m., and at 12:15 p. m.; the dog was left for two and a half hours, then fed. Vomited the entire meal ten minutes after feeding.

Two days later, this dog was given 0.002 Grams emetine hydrochloride, subcutaneously, per kilogram body-weight. Vomiting occurred twice after this dose, also increased salivation, slowing of pulse, decrease of temperature, and muscular weakness. The following day, the dog received a subcutaneous injection of 0.001 Gram per kilogram body-weight, in the shoulder. Vomiting occurred instantly, and thereafter was frequent during the next two days. The dog refused to eat and was unable to stand up. On the eighth day (after the first dose), the dog was dying.

This dog then was quickly anesthetized with ether and bled to death through the carotid artery. The blood was collected aseptically in a sterile flask. It coagulated rapidly and the serum was gelatinous. Postmortem examination was made by Dr. C. A. Zell, of The Abbott Laboratories, and revealed the following conditions:

Pronounced gastroenteritis. Stomach filled with blood from large ulcers on the mucous membrane. Bladder slightly irritated. Hemorrhagic nephritis (apparently chronic). Ecchymosis of heart-muscle and valves. Liver congested, gall-bladder distended and filled with bile. Heart arrested in diastole.

Dog No. 145, which received 0.0025 Grams emetine hydrochloride per kilogram body-weight, by mouth, was left for ten days, after which time the animal seemed to have recovered perfectly.

Then a subcutaneous injection of 0.0025 Gram per kilogram body-weight was given, at

*Henry J. Nichols and Edward B. Vedder give the M. L. D. of emetine hydrochloride intravenously administered, for rabbits, as 0.0025 Gram per kilogram body-weight. But this, according to our results, is too low.

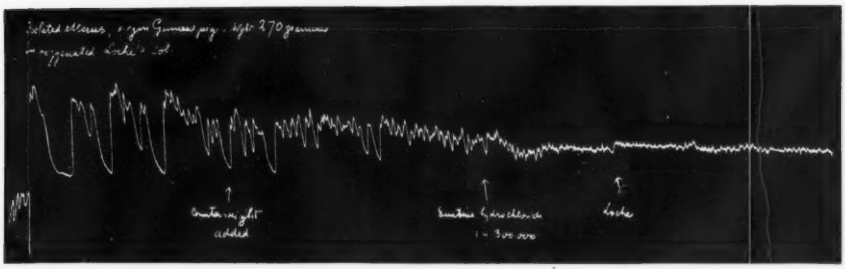

Fig. 5. According to this experiment emetine does not increase or decrease uterine contraction, but weakness of the uterus, when present, may be intensified by its use.

1:55 p. m. Result: Vomited at 3:00, 3:10, 3:20, and 3:35 p. m. Recovered.

The vomited matter, in this case as well as in all the others, was first thin, grayish, and of acid reaction; later, very green from bile and of alkaline reaction. It was collected, acidified with sulphuric acid, and shaken with ether. The ether was drawn off. Then the watery solution was filtered, rendered alkaline with sodium hydrate, and again shaken with ether. The ether extraction was separated, filtered and evaporated to dryness. The dry residue was taken up with dilute sulphuric acid, shaken out with ether and the latter drawn off. The aqueous portion was filtered, made alkaline with soduium hydrate, then shaken with ether. The ethereal extraction was filtered and evaporated to dryness. This residue now was tested for emetine with a solution of molybdic acid in concentrated sulphuric acid.

If emetine were present a yellowish-green color should appear. The reaction was doubtful. (Control tests were made with the residue from a very dilute solution of emetine, treated in the same manner.)

Dog No. 144, who in the meantime (twelve days) had recovered from the first dose, was given 0.0025 Gram emetine hydrochloride per kilogram body-weight, subcutaneously, at 2:45 p. m. The dog urinated one and one-half hours after the injection. Vomited at 4:40 (two hours after the injection), and again at 5:30 p. m. Recovered.

The urine and vomited matter were collected separately, and tested for emetine according to the foregoing method, with the one modification, that the final residue was redissolved in a few drops of dilute hydrochloric acid and again evaporated to dryness. The emetine hydrochloride thus formed, if present, would give a brighter green color with the reagent. The residue from the vomited matter as well as the one from the urine gave a negative reaction.

Dog No. 147; male; weight, 17,300 Grams.

Dose: 0.0025 Grams emetine hydrochloride per kilogram body-weight, in substance, in a gelatine capsule, at 2:50 p. m.

Result: Vomiting occured within fifteen minutes after the dose, at 3:05, again at 3:10, 3:17, 3:30, 3:45, 4:00, 4:10, 4:15. Bowels moved at 3:20, probably also as a result of the emetine.

The vomited matter was tested for emetine and gave a positive reaction.

Thus, then, we find that the vomiting produced in dogs by a toxic dose of emetine hydrochloride occurs rapidly when the drug is given as such by the mouth, much later when given by mouth in a dilute solution, and still later when administered subcutaneously. Fractional doses given subcutaneously produced a pronounced gastroenteritis.

This warrants one in saying, with reasonable certainty, that emetine produces vomiting only by irritating the nerve endings in the stomach wall, and not by direct stimulation of the nerve-center; for, in the latter case, the subcutaneous administration of the drug would produce vomiting much more rapidly than when taken internally.

Effect of Emetine on the Frog's Heart.

The action of emetine on the frog's heart also was studied. Frogs weighing from 40 to 50 Grams were anesthetized with ether and placed on their backs on a moist frog-board, in a moist chamber having a constant temperature of 37 1-2° C.

The frog was cut open and its heart laid free. Successive doses of 0.4 Cc. of a solution of 1 : 5000 of emetine hydrochloride were injected into the lymph-sac of the leg. As the reaction practically was the same in all the frogs tested, I shall cite only one instance:

Frog No. 1; female; 50 Grams:

Injected 0.04 Cc. of a solution of 1:5000:

Rate of heart beat before the injection.....72 per minute
Twenty minutes after injection.....70 per minute
Thirty minutes after injection.....72 per minute

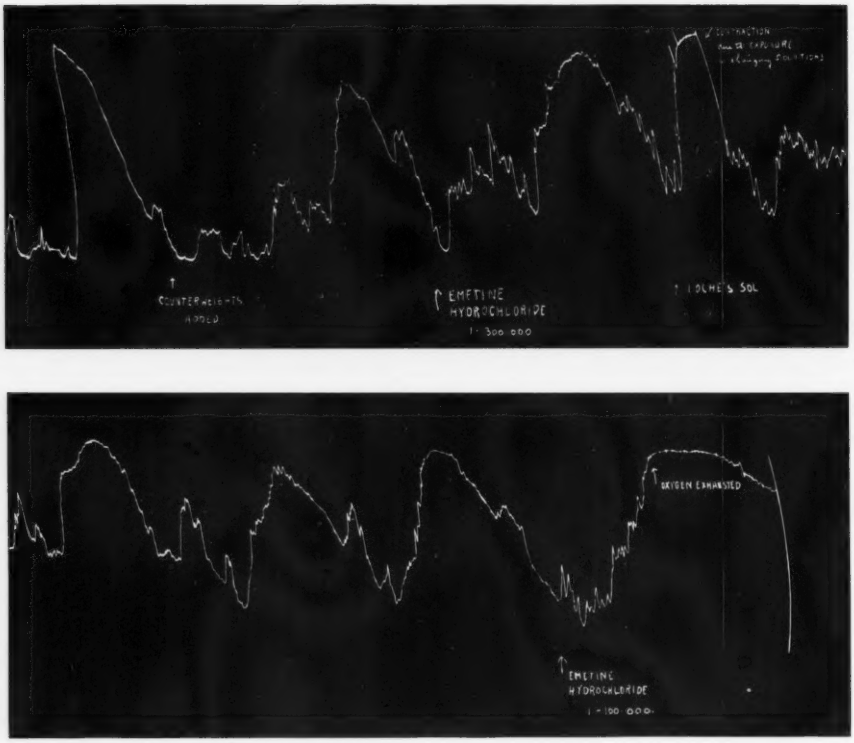

Fig. 6. Experiment with emetine, non-pregnant uterus of guinea-pig. Does not increase tonic contractions, but slightly increases number and violence of rhythmic contractions.

Injected 0.04 Cc. of a solution of 1 : 5000:

Five minutes after injection.....78 per minute
Fifteen minutes after injcetion.....78 per minute
Twenty-five minutes after injection.....80 per minute

Injected 0.04 Cc. more of the same solution:

Ten minutes after injection.....72 per minute
Twenty minutes after injection.....72 per minute
Thirty minutes after injection.....72 per minute

Injected 0.04 Cc. of the same solution:

Five minutes after injection.....72 per minute
Sixteen minutes after injection.....60 per minute

Injected 0.4 of same solution:

Thirty minutes after injection.....60 per minute

Injected 0.4 of same solution:

Five minutes after injection.....40 per minute
Ten minutes after injection.....30 per minute
Fifteen minutes after injection..... 5 per minute

The ventricle beat once for every 5 of the auricle beats; twenty minutes after the last injection the ventricle beat 6 per minute, once per 3 auricular. Sixty minutes after the last injection the ventricle beat once per 11 auricular. One and one-half hours after the last injection, the ventricle beat twice per minute; two hours after the last injection, the heart stopped in diastole.

During this experiment, an increasing relaxation of the muscles and a gradually decreasing respiration also was observed.

Influence Upon the Uterus

Maurel, in his paper mentioned, expresses the opinion that emetine should not be administered in pregnancy, as it might act as an abortive.

I have endeavored to determine whether emetine exerts any influence upon the uterus, using the isolated uteri from virgin and from pregnant guinea-pigs as test objects. The procedure was as follows:

Guinea-pigs weighing from 250 to 550 Grams were quickly killed by severing the carotid artery; then the spinal column was cut. One fallopian tube, with the attached ovary, was quickly excised and suspended, between two platinum hooks, in oxygenated Locke's solution, kept at a constant temperature of 39° C. The upper platinum hook was connected with a light lever, which was adjusted to the smoked kymograph-paper. The con-

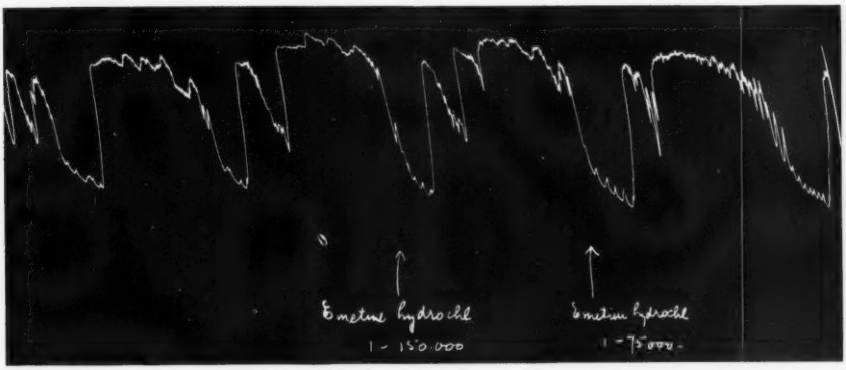

Fig. 7. Experiment on pregnant guinea-pig uterus. Same results as shown in Fig. 6.

tractions of the uterus were diminished by adding counter-weights, until it made regular, rhythmic contractions.

Now different doses of emetine hydrochloride were added to the Locke's solution and the action observed.

The first tests showed that emetine did not cause the isolated uterus either to contract or to relax to any appreciable extent, but it appeared that, when counterweights were added until the uterus was making only small rythmic contractions, the addition of emetine would quickly bring about weakening or exhaustion of the organ. (See tracing No. 5.) Consequently, in the latter experiments, only a moderate amount of counterweights was added, so that the uterus could contract more freely, and thus show more in detail the action of emetine, if any.

As a result of these tests on pregnant and nonpregnant cavy-uteri, it may be said that emetine apparently does not influence the tonic contractions, while it does seem to increase slightly the number and the volume of the rhythmic contractions. (See tracings Nos. 6 and 7.)

As an interesting feature, I may mention that the segment of the pregnant uterus used for tracing No. 7 still contracted in a lively manner after twenty-four hours, although it had been left over night in Locke's solution containing 1-75000 Gram emetine hydrochloride, with the oxygen shut off, and the temperature decreased to 15° C.

Conclusions

1. The hemostatic action of emetine hydrochloride in therapeutic doses is a consequence of its vasoconstrictive properties, confined to the capillary circulatory system, in conjunction with a decrease of the rate of the heartbeat, produced at the same time.

2. Apparently it does not influence either the physical composition or the coagulability of the blood.

3. In toxic doses it causes increased salivation, nausea, vomiting, slowing of pulse, decrease of temperature, and muscular weakness.

4. In lethal doses it produces central paralysis and arrests the heart in diastole.

5. The vomiting produced by toxic doses is due to local irritation of the gastric mucous membrane.

6. The results obtained with pregnant and non-pregnant uteri from guinea pigs seem to indicate that the action of emetine hydrochloride on this organ is not of therapeutic importance.

Lady Nicotine—Beneficent or Notorious

By Edwin F. Bowers, M. D., New York City

AFTER all is said and done, its worst enemies cannot accuse the sleek brown weed of making men quarrelsome. Always—since the overgallant Raleigh brought it from America and presented some to Queen Elizabeth—tobacco has assisted the deliberations of the mighty, cemented friendships, spun its tenuous clouds of romance in the brain of the poet, and sung its silent song into the soul of the musician. It is associated always with peace. Moreover, it has brought more solace, more comfort, and given greater enjoyment than any other artificial stimulus. It has helped more men over hard places than has any other agency.

None deny that tobacco possesses many virtues—in fact, many insist that these predominate. We know that it is exceedingly efficacious in destroying microbes, for, experiments have shown that in five minutes tobacco-smoke will kill the germs in the saliva, practically sterilizing the mouth. We also know that, if tobacco is placed in water containing cholera microparasites, these will be destroyed in twenty-four hours. In fact, the insecticide properties of a decoction of tobacco are of definite commercial value in killing sheep-ticks and other vermin, spraying fruit-trees, annihilating plant-lice, and making life miserable generally for get-at-able bugs.

Chemically, we know that tobacco contains albumen, gum, resin, malic and citric acids, and a large amount of inorganic salts—including potassa, magnesia, and silica—and last, but not least, nicotine.

Doctor Fullerton, of Cleveland, advocates the use of tobacco, chewed or smoked, as a germ killer—or, if not a killer, at least a crippler or paralyzer. He substantiates what we have said regarding its antiseptic qualities, based upon certain experiments with "sterilized tobacco-juice." This he applied to pure cultures of the diphtheria, typhoid, and various other varieties of germs having predatory activities, and found that from 15 to 98 percent of germs were killed by the tobacco-juice in one hour, while an average of 84 percent were exterminated in twenty-four hours. The smoke from 45 grains of tobacco of only moderate rankness, burnt in a pipe, killed over half of these same varieties of germs.

Some years ago, General T. L. Clingman, of North Carolina, a senator and a tobacco-planter, advocated the use of tobacco as a specific for almost all the ills to which flesh is heir. The leaves, moistened and bound over the parts, were "cal'lated" to relieve wounds, bruises, sprains, inflammation of the eye (the General claimed to have cured his own case "when the doctor had given it up"), diphtheria, "quinsy-sore-throat," erysipelas, croup, sciatica, bunions, corns, bites, stings, boils, tumors, and a few other diseases that were not yet classified. In fact, almost every human or animal ailment, from hemorrhage to hemorrhoids—according to the doughty General—yielded to the potent powers of tobacco.

Some Therapeutic Properties of Tobacco

The "tobacco cure" had some following among the southern doctors, but the fad did not last long, Physicians found that the drug had undoubted medical properties, particularly when given internally in the form of a decoction—if the patient could keep it down. It relaxed muscular fiber, and was, therefore, valuable in strangulated hernia, intestinal obstruction, asthma, strychnine poisoning, and lockjaw; but, on account of its depressing action, only the seventh daughter of a seventh son, born under a caul, could tell how much to give. No one knew what constituted a dose, and in finding out by experiment there was a very likely chance of killing the patient.

It is highly probable that a mild cigar after meals, by increasing the flow of hydrochloric acid and pepsin, assists digestion. This may be owing to irritation of the gastric mucosa or perhaps it may be psychic in its origin—in other words, suggestive. Be that as it may, many millions of men regard a good dinner as merely the preamble to a good smoke.

The use of tobacco has also a stimulating influence upon intestinal peristalsis, and many thousands of men would be victims of the pill and enema-habit, were it not for the beneficial effects of that after-breakfast cigar.

The effects of tobacco, in ordinary dosage, are distinctly sedative. It creates a feeling of wellbeing and peace-with-all-the-world, that is equaled by nothing except hasheesh and cocaine. It blunts the keen edge of pain

and has a distinctly analgesic action in neuralgia, toothache or other forms of nerve irritation.

Another good feature in being thoroughly "smoked" is, that one is not nearly so appetizing to mosquitoes and other insects; in fact, there is a poetic justice in realizing that these little vampires will sometimes drop dead after sucking the blood of a supersaturated tobacco-habitué.

But Lady Nicotine Has a Shady Side, Also

Having said all the good things we can think of about the nut-brown weed, let us reverse the shield. In justification of the charges of its opponents, it must be admitted that this is a very sadly blurred and battered side. For, according to the best opinion of scientists who have investigated very carefully, Lady Nicotine is a twofaced jade, who holds out the lantern of promise to our eyes, only to break it over our heads.

Tobacco's delightful *dolce far niente*—so they say—is merely a stupor, the easeful sedation of a poison, relentless in its hold upon those who, too long, have worshipped My Lady of Nicotia. Now we are beginning to understand that she is harmful to our physical welfare, depressing to our nervous system, and destructive to our moral tone—particularly in the immature. Nicotine is a drug the effects of which cannot be guaranteed under the pure man law.

Practically all medical men agree that the excessive use of tobacco is dangerous. First, the smoke itself—by reason of the ammonia, carbon, and carbonic-acid gas which it contains—is irritating to the respiratory mucous membrane, setting up a chronic catarrh or some other subacute inflammatory process; next, the fine particles of carbon settle in the throat or in the lung-cells, causing irritation and "shortness of breath"; then, the ammonia "bites the tongue," drys the throat, and also has a deleterious effect upon the blood. The carbonic-acid gas in the tobacco-smoke produces dizziness, headache, and lassitude—permanently subsiding only with the removal of the cause.

Also, nicotine, which is absorbed from the end of the cigar or from the oil and water in the stem of the pipe, is a powerful narcotic poison. One drop, placed on the tongue of a dog (so we are told), will kill him "deader than a door-nail." In fact, if the nicotine contained in a single cigar were dissolved out and injected hypodermically into a human being who had not established tolerance for the drug, it inevitably would prove fatal.

It may here be noted that nicotine itself is not found in smoke, as it is changed by combustion into pyridine and collidine; still, these substances retain, in a degree, practically all the depressive qualities of their volatile ancestor. Also, the heavy odor of dioxide of carbon—one one-thousandth part of which will pollute the air of a room—is very unhealthful and obnoxious, even to smokers themselves.

Bad Effects Upon the Heart

The inhalation of smoke and the absorption of toxic byproducts into the circulation through the two thousand square feet of lung air-cell surface, arrests oxidation. Like alcohol, opium, and other narcotic drugs, tobacco retards the burning up of dead tissue. It prevents cell metamorphosis, and consequently impairs nutrition; for, in perfect metabolism, it is as essential to get rid of dead material as it is to build living structures. And, further, we cannot build living structures until the debris of the wornout cells has been removed. This explains why the use of tobacco in growing boys is most injurious; it stunts them, mentally and physically, and lays the foundation for the acquirement later of even more pernicious and reprehensible habits.

Next, the excessive use of tobacco unduly stimulates the nervous system and the action of the heart. When the products of cell decay are stored up in the tissues, the heart automatically pumps faster—as in the effort to oxidize an excessive amount of fatigue-poison generated by violent exercise. The heart is endeavoring to bring to the cells sufficient oxygen to burn up and convert their metabolic poisons; that is, the poison developed in the repair and destruction of cell-tissue. Vital energy is dissipated, for which there is no compensatory return. If this is long continued, the heart weakens, loses the regularity of its rhythm or even "skips" an occasional beat. In addition, it contracts more rapidly, and with unnecessary force, and then we have the serious state known as "smokers' heart." If the cause is not removed, the smoker will keep on "skipping," getting progressively worse, as the condition develops from functional into organic; and eventually he will skip to another land—where there is nothing else to do but smoke.

Sometimes, even though the patient reforms and gives up entirely the use of tobacco, the rapid heart action and irregularity induced by his former excessive smoking will be

permanent. A friend of mine has one of these reformed-smoker's hearts of twelve years' standing, and bids fair to keep it for forty-eight more—if he lasts that long.

Harmful Influence of Smoking Upon Mentality

Excessive use of tobacco, to many individuals, impairs the memory. It creates a sluggishness and apathy that reflect themselves in mental incorrelation—in an inhibition of the association impulses. It is asserted that in a period of more than fifty years no inveterate user of tobacco has ever carried off the first prize at Harvard College; and this is corroborated by the experiences of other schools where records have been accurately kept.

Those who believe that they think more clearly while under the influence of tobacco probably actually do think better, but this is because of the fact that the system has accustomed itself to tobacco—that a certain amount of the drug is necessary to restore what, to them, is a normal condition. Just as the alcohol-saturated cells of an addict cry out for sufficient alcohol, to permit them to function normally to their acquired pathological habit, so the nerves and cells of a constant tobacco user demand a certain amount of nicotine, in order to relieve abnormal nerve and body tension. It is because the tobacco-addict is not compelled to think about how badly he wants his smoke that he thinks better when he has it.

All college-men—and even most schoolboys—know that, from the moment they begin training until they "break" again, the use of tobacco is absolutely interdicted. Experience has demonstrated that the "wind," digestion, and heart are powerfully and unfavorably influenced by its use. No athlete who is called upon to expend his last atom of strength, skill, or endurance in friendly contest can afford the almost certain decrease in strength and skill or weakening of heart and "wind" which trainers know will inevitably follow dalliance with nicotine.

Consider next the influence of tobacco in undermining will-power and in predisposing to alcoholic excesses. It is maintained, by specialists in the treatment of drug- and alcohol-addiction, that dipsomaniacs whose periodic debauches seem to occur without rhyme or reason are victims of chronic tobacco poisoning, and that this poisoning is really the fundamental cause of their periodic inebriety. This is particularly true of cigarette-smokers and pipe- or cigar-smokers who "inhale" the tobacco smoke.

The explanation is, that these patients smoke themselves beyond the sedative stage and into a state of nervousness, then increase their smoking, in a vain attempt to gain sedation. Finally they become so nervous through tobacco excesses that they require a narcotic to quiet them, when they turn to our old friend John Barleycorn. Their jaded and harrassed systems are exceedingly intolerant to alcohol, for, after the first few drinks they are mentally "over the way." They then decide that they might as well be drunk as be the way they are, so, go to the full spree.

The vicious cycle can be broken only by these men quitting tobacco. Unless this is done, they will continue to use—or rather abuse—both alcohol and tobacco. They can not stop drinking—and this is worth remembering—they can not stop drinking unless they first give up smoking.

Next—and this is interesting to the middle-aged who are developing a little blood tension, or whose arteries are losing elasticity—it has been shown that tobacco aggravates, if it does not cause, arteriosclerosis. This is owing to its stimulating effect upon the adrenal glands—those little bodies that sit like caps on the tops of the kidneys, and whose function is so obscure and complex. These glands, when overstimulated, secrete an abnormal amount of adrenaline into the circulation, which, on its part, in some inscrutable way has the effect of increasing blood tension and hardening the arteries.

Also, every eye-specialist has seen cases of toxic amblyopia (weakness of vision produced by poisoning), paralysis of the optic nerve or even optic-nerve atrophy (a destruction of the nerve-cells and their replacement by dense connective-tissue growth), which originated in the excessive use of tobacco. Unless the habit be stopped, the patient frequently goes to complete blindness, and with this hardening, even though smoking be stopped, he goes anyhow.

Cigarettes, and the Boy

Lady Nicotine's favorite method of winning young boys is, to break down their will-power. A typical boy "fiend" will lie, steal, and indulge in the most depraved and unnatural acts. In fact, the first step in the making of a "bad boy" is, to teach a good boy to smoke, especially cigarettes. From this humble but effective beginning, he may be depended upon to gravitate to liquor, "gangism," and most of the crimes that may, ultimately, land him in a reform-school or the penitentiary.

Cigarette smoking is infinitely more pernicious than drinking; for, the drink-habit in boys is readily curable, while the cigarette-habit is but seldom eradicated. In fact, this habit is far more injurious than is any other form of tobacco-addiction, unless it be chewing. For, the byproducts produced by combustion of cigarettes are even more deadly than are the nicotine byproducts.

Among these cigarette byproducts (in addition to those of the nicotine group) we have furfurol—one of the aldehydes (an alcohol deprived of its hydrogen) said to be fifty times as poisonous as ordinary alcohol. This is the drug which is chiefly to blame for tremors, twitchings, and transient irritations, and which explains very consistently the characteristic handwriting of the cigarette-fiend. In its cumulative and long-continued effects, it causes both true and hystero-epilepsy, also muscular paralysis.

Another member of the malodorous family of aldehydes found in cigarettes is acrolein (or acrylaldehyde, for short), an intensely stimulating drug, with a decidedly depressing after-effect. When furfurol and acrolein are inhaled (the smoke percolating through the lung cells), they cause a general irritation followed by narcosis, and by their continual use the nervous system is shattered.

In the English Army, among the troops on march or during active maneuvres, the use of cigarettes has been absolutely prohibited. This, because so many of the men were developing "hearts"; that is, irregularities in the pulse rate and conditions which in one or two instances even were fatal in their effects.

While authorities differ as to the probability of cancer developing as a result of smoking, there is absolutely no doubt that lip-cancer (epithelioma) and cancer of the tongue and the throat have been traced to the irritation of the pipestem or the hot acrid smoke.

Tobacco is a strangling-clutch on the throats of most singers and speakers, depositing, as it does, irritating and "drying" particles of carbon in the resonance-chambers of the nose and oral cavity, and inflaming the delicate vocal chords and larynx with its acridity.

We can also say, with comparative certainty, that functional derangements of the digestive, nervous, and circulatory systems (manifested in headache, lack of appetite, dyspepsia, nausea, lassitude, lack of concentrative power, confusion of mind, indisposition to muscular effort, incoordination, and insomnia) frequently follow our treading the primrose paths hand in hand with Lady Nicotine.

To the average man, the habit of snuffing seems most peculiar—one, apparently, without reason. There is, however, an appreciable amount of stimulus from the local action of tobacco upon the nasal mucous membrane. The snuffing is really a sort of homeopathic chewing.

Except among the more ignorant of Southerners, the practice of dipping a small brush or roughened stick of wood into tobacco and rubbing it on the gums or mucous membranes of the mouth is now almost obsolete. This manner of using produces a powerful excitation upon the nervous system. Also, partaking blithesomely of an infusion or decoction of tobacco is a custom that now happily is honored more in the breach than in the observance.

As to the Money Consideration and Statistics

With the cost of the tobacco-habit we are not here concerned. If it helps, it is—like anything else that is helpful—worth all it costs. Figuring that, if one saved his cigar-money for sixty years, he would have enough laid aside to put a new tin roof on the barn or to repair the automobile, doesn't "get anywhere" or convince anyone.

We do accomplish something definite, however, if we can prove—as did Ceisne, a French physician—that among 38 boys between 9 and 15 years of age, in 22 there were marked circulatory disturbance and heart palpitation; in 13, intermittent pulse; in 8, decided anemia; several suffered from nosebleed, insomnia, and nightmares; 4 had ulcerated mouths; and 1 had consumption; all as a result of tobacco-addiction.

Further, if we show that 11 of these 38 boys were induced to quit the use of tobacco and within six months were completely restored to health, we accomplish still more.

Accurate statistics are not obtainable as to the influence of tobacco in causing insanity, although many of the world's greatest authorities on mental diseases are convinced that it is a predisposing factor in a large percentage of the victims. There is no doubt that in the presence of an unstable nervous organism, nicotine is extremely detrimental. Just how detrimental, remains to be found out.

Life-insurance companies also have neglected a very fertile field for investigation, in not obtaining more definite actuary and mortuary statistics relating to tobacco-users, by listing smokers and nonsmokers separately, as many now do with drinkers. One New

York Company (The Postal Life) is taking this matter up, and in a recent bulletin it said: "We believe the attitude of the medical profession is rapidly changing toward tobacco, as it has changed toward alcohol." Which would indicate that this company has reason to regard tobacco as definitely injurious to the human organism. We are in the habit of looking to the insurance companies for accurately tabulated information in vital statistics: we might, therefore, recommend this subject to their attention.

It is a great pity that experiments of an exhaustive and convincing nature have not yet been attempted with tobacco, to determine, by instruments of precision, just what degree of deterioration, if any, follows its use. It is to be hoped that scientists, such as Professor Chittenden and Doctor Mendel, and others interested in physiological or psychological research-work, will undertake experiments like those of Professor Kraepelin's with alcohol.

These investigators might set aside a squad of, say, ten men who can stop smoking for a period, and at the start ascertain their maximum capacity for work, by means of the ergograph, "writing-balance," memory, adding and subtracting tests, and whatever else may appeal as of interest and conclusive. Then these same men should smoke or chew a definite amount of tobacco each day, and be subjected to the identical experimental tests; tabulating the results, and comparing them with the preceding tests. It would be interesting to try out the squad also on the hurdles, the track, the blowing-, punching-, and striking-machines, "chinning the bar," dumb-bells, weight lifting, standing on one foot or whatever else might serve to demonstrate muscular vigor and coordinate power; and then compare the before and the after results of this work. These experiments, if the results of the tests bore out clinical findings, would give us a mass of irrefutable data, extremely valuable and helpful, and which, incidentally, would make very interesting reading.

Various methods have been employed to render tobacco less harmful, among them many attempts to extract the nicotine (which usually "runs" from 1 to 8 percent). Perhaps the "de-nicotined" or "hygienic" cigars now sold in France and Switzerland come nearest to this aim; the method employed being, to soak the leaves in fresh water for an hour, then drying them slowly in the sun. In this way, a large percentage of the nicotine is dissolved out of the tobacco; enough, in fact, to render the water fatal to plant-lice. In tobacco thus purified, the harmfulness is reduced to a minimum; but the resulting flavor of hay is not likely to appeal to seasoned smokers.

A divorce, or at least a legal separation, from Lady Nicotine has been secured, "for cause," by some of her most abject and long-serving bondsmen. In this connection, the story of the old chap of sixty-five, who had been a constant chewer and smoker for almost fifty years, comes to mind. This man announced at a gathering of his old cronies that "he was going to quit for good." When pressed for his reasons, he declared, with much feeling: "If I ain't careful, this durned thing will fasten itself upon me as a habit."

And, after all, that is what it is—a habit. Whether it is fraught with much good and a little bad, or much bad and no good, depends upon whether we use or abuse the habit. Whether we are greatly to be injured, or mildly benefited, depends upon who is "boss." If Lady Nicotine holds the whip-hand, we are in the power of a notorious slave-driver. If, on the contrary, we have her trained to obey our intelligence, she is a beneficent matron. And that reminds me—my supply of cigars is getting pretty low.

Diseases of the Alimentary Canal

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EDITORIAL NOTE.—This is the fifth paper in Doctor Benedict's series dealing with diseases of the alimentary canal. We are sure that every reader of "Clinical Medicine" will be pleased to learn that these articles will be continued for several months.

V. Various Functional Disturbances.

While a tabular classification is of value in fixing ideas, no such ideal classification of stomach disorders, as has been mentioned, along the lines of increase and decrease of the three cardinal functions of motion, secretion, and sensation, satisfactorily disposes of all the nonorganic conditions encountered. In fact, so far as the writer's observation goes, nature never submits kindly to braces with Roman and Arabic numerals, capital letters, small letters, and Greek letters for subdivisions in parenthesis. Hence, various other functional disturbances, more or less confined to the stomach, will be considered, without attempting any logical classification.

Eructations—"Gas in the Stomach"

Eructation consists in the expulsion of gas, or of a small amount of liquid or pultaceous stomach contents, or both. Any large accumulation of gas in the stomach should escape through the cardia or the pylorus, and it is obviously difficult to formulate concise statements as to the relative tonicity of the two sphincters, or of the relation of sphincteric tone to expulsive muscular contractions of the entire gastric muscle, or to extrinsic expulsive factors such as respiration, abdominal strain, compressive force or blows on the body-wall.

Gas in the stomach arises from three principal causes, namely: air swallowed, either in hasty eating or aspirated in aerophagia (*q. v.*); volatile substances and true gases produced by fermentation; gas produced chemically by the mingling of carbonates and acids (with which may be included the swallowing of beverages already charged), as by taking sodium bicarbonate or both acid and carbonatic chemicals as in the seidlitz powder and many proprietary laxatives, or by the union of acid gastric contents with the carbonatic secretions of the liver, pancreas, and intestinal glands, the pylorus being sufficiently open to allow this gas to enter the stomach.

As to the first, it is only necessary to remark that certain persons seem to have such a conformation of the throat and muscular action of the pharynx that air is inevitably swallowed in considerable quantity, however careful they may be in eating.

As to the third, it should be pointed out that, if there is an ulcer of any kind or if the cardia does not readily allow the eructation of an excess of gas, great caution should be exercised in the administration of effervescing mixtures or of any carbonate which, with the probability of the presence of an acid reaction at any time during the period of active gastric digestion, will produce effervescence. So far as the effervescence from physiologic secretions are concerned, it should be remembered that this phenomenon is normal, that it expedites peristalsis and the floating function of the intestine, that so long as the pylorus closes firmly after each escape of gastric contents into the duodenum, no appreciable quantity of gas can enter the stomach; but that, in hyperchlorhydria or euchlorhydria or even in hypo- and in achlorhydria, if the total acidity is considerable, a relaxed pylorus allows considerable quantities of gas to enter the stomach, and to cause more or less distress, according to the tonicity of the cardia.

Fermentation-Gas Not Common

So much has been written and spoken about fermentation-gas that it might seem useless to dwell on this subject. But the writer wishes to urge the routine examination of stomach contents, including vomited matter, with reference to this point. All that is necessary is, to place the chyme in a U-tube, such as a ureometer, or in the Schmidt apparatus for collecting fecal gas, and let it stand at about the body-temperature for twelve to twenty-four hours. It is not even necessary to have an incubator, as almost any house furnishes some place at the top of a room or over a radiator or stove that maintains a sufficient temperature steadily enough for approximate purposes.

If one will make this test as a routine for even a few months, he will be greatly surprised and will have fixed in his mind certain general facts of the utmost importance. If there is any considerable amount of hydro-

chloric acid present, say above 15 percent decinormal, it is only under the most unusual circumstances of saprophytic involvement of the food that more than a few bubbles of gas will form, even after twenty-four hours' delay. Even, frequently, in marked hypochlorhydria, achlorhydria, and achylia, gas will be formed only in minute quantity. With rare exceptions, the total gas formed by fermentation in twenty-four hours amounts to not over 50 percent by bulk. Yet, we have been asked to believe, as a profession, that the same process occurring in the stomach will yield enough gas to pouch out the cheeks (about 50 Cc., as can be determined by collecting in a water-trap) every few minutes, from a content of 1000 Cc. down to 100 Cc. It will also be learned that the cases that actually do yield copious eructations of gas show only a few bubbles on incubating or, at most, what would represent one-half or two-thirds of the bulk of the stomach contents in twenty-four hours.

The differential diagnosis of eructation of swallowed air or gas generated chemically from seidlitz powder, sodium bicarbonate, etc., is easily made, since the belching stops shortly after the gas has been swallowed or generated. Quite rarely there is fermentation of the amount conceived of in descriptions of eructations due to fermentation, but only when the food is grossly contaminated or there is marked stagnation, abundance of yeast cells and bacteria in the stomach.

Now, if one wants to know why belching of considerable magnitude can occur when a sample of the same stomach contents yields only a small amount of gas by fermentation in a tube for twenty-four hours, let him take the small 1-Cc. curved tube, provided with the ureometer for adding urine to the hypobromite solution, and introduce into the stomach contents a saturated solution of sodium bicarbonate. Excepting very marked intestinal fermentation with regurgitation into the stomach, analogous effervescence with the physiologic carbonatic secretions is the only explanation that occurs to the writer.

After this somewhat lengthy discussion, a formal presentation of differential diagnosis of the nature of eructations scarcely is necessary. Having determined more or less probably the nature, the treatment will be more logical. For example, if the cause of the gas is air-swallowing in the literal sense (aerophagia will be discussed later), the only treatment consists in advice as to habits of eating. In fact, it is the opposite condition of *gastric distension*, or ballooning, that needs to be treated, even by intubation, in order to evacuate the air, in extreme cases in which the pressure on the heart is serious.

Diet Useful When Eructations Occur

If the eructations are of moderate amount, occur late after a meal (that is, late enough to exclude air swallowing), and occur at rather long intervals, and if presence of fermentation-gas is actually shown by the tube-experiment, the diet must be as nearly sterile as possible, oral asepsis—including dental attention if necessary—must be inforced, digestive defects must be remedied, stagnation must be offset so far as possible, and, finally, but perhaps not so unimportant as some authorities aver, antiseptics may be used. Of the latter, a great variety is available; among which menthol, salol, salacetol, diaspirin, bismuth salicylate, and orthoform may be mentioned; also, thoroughly dry animal charcoal in adequate dose (1 Gram or more) may be taken to absorb the gas.

On the other hand, if the diagnosis of fermentation-gas is made by reason of preconceived notions, when the real cause is a mingling of acid gastric contents with alkali carbonates of the joint intestinal secretions, then, of course, antiseptics will fail; the clinical evidence against them probably being mainly based on their employment under improper conditions.

If there exists a genuine hyperchlorhydria, the treatment directed especially against the gastric secretion, as already detailed, may be adopted. If hydrochloric acid is not in excess or even is deficient, so that the carbon dioxide is liberated by acid factors of another kind, we have the more difficult problem of controlling a relaxed pylorus—which the writer has already discussed; not very satisfactorily, it is true, because of inability to solve the problem in a way one might wish.

Pyrosis, Heartburn

Pyrosis, while often used as a synonym for heartburn, usually is made to imply also the eructation of liquid or semiliquid matter, especially of acid nature. It may have been noticed that under the head of Eructation only the belching of gas was considered, so that here we may limit the discussion to the liquid and pultaceous chyme brought up, and, as a matter of convenience, will include a consideration of chyme of any nature, without special regard to the sensations in the stomach.

Belchings of this general nature are distinguished from vomiting both by their small amount and by the absence of nausea. But,

in the first stage of seasickness (to which the term nausea literally applies), nausea is not necessarily present and the patient is rather surprised when the raisings from the stomach become of larger amount and are attended by nausea. So, belching from any other cause may grade into vomiting.

The acute observer will discriminate between belching of liquid and pultaceous cyhme accidentally accompanying eructations of gas, and that in which there is a less explosive but more strictly peristaltic raising and no gas. If the latter, the diagnostic and therapeutic attention must be directed toward the motor function of the stomach, particularly the relaxation of the cardia and the more or less probable spasm or obstruction of the pylorus. These matters have already been considered.

Mericysm

Mericysm is a form of quiet belching, without eructation of gas, and by some is considered as a reversion to the physiology of ruminants. It is one of those neuroses which do not ordinarily occur in typically neurotic patients and generally is considered a form of self-indulgence, the patients being described as enjoying the repeated tasting of the food, which is unchanged in flavor and not acid—implying that the neurosis occurs early after a meal or that, if occurring later, there is a lack of hydrochloric secretion, if, indeed, peptonization has occurred at all. The description also implies the absence of entry into the stomach of bile, pancreatic juice or intestinal contents through regurgitation. It is also commonly stated that many subjects of mericysm can bring up any single ingredient of the meal at will.

If we scrutinize this description of mericysm critically, several incongruities appear. First of all, it is highly improbable, to say the least, that the stomach has any such voluntary and selective power as is implied in the last statement. Secondly, it is improbable that there is either a delay or characteristic lack of secretion and digestion on the one hand and, in such absence, an absolute closure of the pylorus against intestinal contents and an inhibition of fermentative changes on the other hand. In fact, all there is to mericysm is, that certain persons rather enjoy the belching up and tasting of stomach contents; that, along with that of their esthetic sensibilities, there is a greater or less obtunding of the sense of taste so far as digestive, fermentative and intestinal changes are concerned; that some subjects more or less deceive themselves or their attendants into the belief that only certain articles are brought up from the stomach. Consequently, these cases should, for practical purposes, be considered as ordinary belching plus a perverted enjoyment of the condition.

Hiccough

Hiccough is an intermittent inspiratory effort, interrupted by the closure of the glottis. It is not, strictly speaking, in any sense a gastric neurosis. It is frequently seen in the dying, in those intoxicated, and in those partly under the influence of ether or chloroform, either at the beginning or the end of the anesthesia. It will be observed that alcohol and ether differ only in a way as do the hydroxide and the oxide of magnesium.

In this group of cases, it is questionable whether the glottis is closed so much by spasm as by paralysis and entrance of mucus. Ordinary hiccough is induced by rapid deglutition, by swallowing dry substances, and perhaps by consequent direct irritation of the glottis by foreign particles; and it is relieved by rest, drinking of water, forced voluntary respiration, and other measures. Like almost any other abnormal muscular phenomenon, it may be due to accidental location of a hysteric influence; or the excitoreflex may be quite local and may consist in almost any abnormality of the larynx, pharynx, fauces, tonsils, or posterior nares; or it may be distant and may consist in some gastric irritation, with or without organic lesion, gallstones, inflammation of the biliary passages, and various other digestive conditions.

Obstinate hiccough is quite likely to occur in persons suffering from hepatic sclerosis, but whether the latter lesion has any direct causal relation is doubtful.

Although nearly always it is a trivial matter and can be relieved by simple means, hiccough may prove a very serious, exhausting reflex and even may result in death. Here, the customary mild sedatives are ineffectual. Full anesthesia, together with concomitant stimulation by means of heat, strychnine, digitalis, and so on, also, traction of the tongue, passage of an esophageal bougie, gastric lavage, applications of local anesthetics to the fauces, pharynx, and larynx, the application of faradism or of galvanism, thoracic strapping, intubation of the larynx, free catharsis, suggestion (including that of deep breathing, with protracted attendance and suggestion for almost every breath) are among the various means to be thought of, upon various theories of action.

Aerophagia is similar to hiccough in its nature, with, however, less marked spasm; there is distention of the esophagus, so that air is brought into the latter, or even into the stomach, through the negative thoracic pressure, the air being intermittently regurgitated, as a rule quite audibly. This phenomenon is a neurosis quite analogous to that of cribbing of horses. Unlike many neuroses, attacks mostly are induced so readily that ample opportunity is afforded for observation. The patient is apt to regard the phenomenon only in its expiratory phase, and the physician, too, may be deceived into a diagnosis of eructation. The steadiness of the procedure, the amount of gas evacuated, the distinct neurotic element, as also auscultation, will afford the differential diagnosis.

A predisposing cause—such as adenoids, pharyngeal or laryngeal inflammation, nasal polypi, movable kidney, gallstones, chronic appendicitis, or any one of a wide variety of abdominal and pelvic conditions—may be discovered, but relief of the "cause" is likely to prove unsuccessful as to the reflex by reason of the establishment of the neurotic excitoreflex current.

While resort may be had to general treatment, relief of any discoverable lesion for its own sake, and local treatment by the passage of the esophageal bougie or tube, or applications of anesthetics and astringents, the only treatment that has proved radical in the writer's experience is a full explanation to the patient of the neurotic element in his trouble and the enlisting of his efforts to stop the disagreeable habit.

(*To be continued*)

The Doctor's Horse

By Nelson S. Mayo, D. V. S., Chicago, Illinois
Secretary of the American Veterinary Medical Association

Soundness

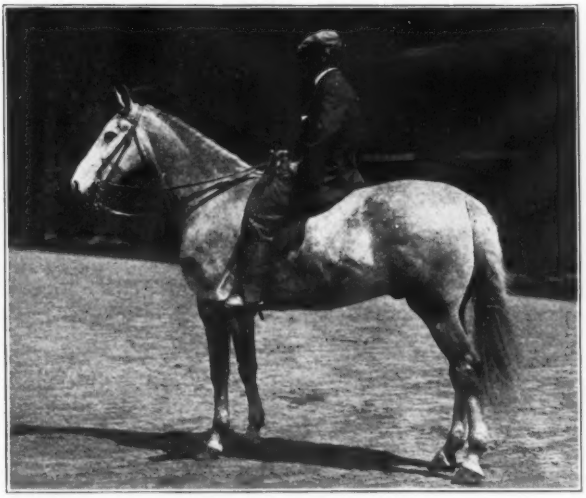
THERE is a peculiar, one can almost say fascinating, interest in the subject of soundness or unsoundness of horses. It is to this that horse trading largely owes its attractiveness. The defects and idiosyncrasies of horses are so many, the opportunities for deception so numerous, and the inherent pride of almost all men in their fancied ability to detect unsoundness is so great that nearly everyone who has "swapped" horses sympathizes with the New England deacon who was fearful of feeling lonesome in Paradise without a horse trade in sight.

A physician who contemplates purchasing a horse upon the market will find it economical to secure the services of a reliable expert to pass upon the question of soundness in the horse; but even then generous allowances must be made, for there are peculiarities of horses, as well as of humans, that are not apparent until you have lived with them for awhile. If possible, secure a warranty from a reliable dealer and also the privilege of a thorough trial.

In examining a horse for soundness, it is assumed, in the premises, that the animal possesses every disease, deformity, and vice that horseflesh is heir to, and then by a careful, thorough examination and test one proceeds to prove their absence. And such examination should be conducted without interference of any kind. It is a frequent trick of unscrupulous horse-dealers to call attention to a part of the body that they know to be normal, in order to distract attention from an unsoundness in some other part. As an experienced horseman once said to the writer: "If a man calls my attention to a horse's hock, I make a particular examination of the eyes."

Where it is possible, it is a good plan to examine a horse in his stall under normal conditions for stable vices. Besides these vices, there is a peculiar nervous condition resembling stringhalt, which can be detected only in this way. This consists in one or both hind feet appearing as if glued to the floor; however, after an effort the foot is jerked up, whereupon, after a few steps, the legs "limber up," so that the defect is not noticeable.

Among the stable vices to be looked for is "weaving," a habit consisting of swaying back and forth, sometimes for hours. Stall kicking and persistent pawing are other vices, as is crowding a person against the stall. Signs of "cribbing" should be looked for in the stall, and the manner in which the horse is tied should be noted. An unusually strong halter or rope about the neck is an indication of halter pulling. The horse should stand squarely on its feet. If it "points" a foot, it indicates soreness or lameness. After the stable examination, the horse should be



A Good All-Round Doctor's Horse

taken where there is good light, then, beginning at some definite point, such as one of the nostrils, the whole animal should be gone over carefully.

The nostril should be examined for evidences of glanders or any other abnormal discharge; any abnormal odor of the expired air is taken note of. The mouth should be examined as to age, the incisor teeth for evidences of cribbing or "parrot-mouth," the molars for irregularities or disease. The saliva should be free from disagreeable odor. The tongue should be in normal position and free from scars. The latter indicates the use of a harsh bit and must be carefully considered. The great and common "bugbear" of "wolf"-teeth may be of interest.

"Wolf"-teeth are supernumerary rudimentary molars, and are frequently observed in young horses, just in front of the first molar on the upper jaw, less frequently on the lower jaw. Probably fifty percent of horses under 5 years of age have these rudimentary teeth. There is a popular belief that "wolf"-teeth cause blindness, but this is not true. Veterinarians usually extract them, as they are useless, while a bit drawing against them may loosen the teeth and cause a sore mouth.

The right side of the face and lower jaw should be free from scars, fistulas, and enlargements. Fistulas from ulcerated molars or rupture of Steno's duct are quite frequent. The submaxillary lymphatic glands should be normal in size and freely movable.

The eye should be full, clear, and free from abnormal specks, cloudiness, and sedimentary deposit at the lower part of the anterior chamber; which latter, if present, indicates periodic ophthalmia—a disease that sooner or later will cause permanent blindness. In order to learn how the iris responds to light, the eye should be closed by placing the hand over it. The pupil of a horse's eye is oval, and often the edges are fringed with pigment

globules commonly called "soot-balls." These vary greatly in number and size; they are of no pathological significance, however.

The top of the head should be examined for poll-evil or enlargements, and also to determine whether the horse objects to having its head or ears handled. For some horses a stepladder is required to put on the bridle or halter.

The throat should be examined for goiter and for evidences of a cribbing-strap having been worn. The mane always should be thrown to the opposite side and the neck examined for brands, particularly the letters I. C., the latter showing that the horse has been inspected and condemned in the army service, usually because of unsoundness.

Looking Over the Shoulders and Front Legs

Turning to the withers, look for fistulas or swellings. On the shoulder look for sweeney and tumors. Shoe-boils or capped-elbow is plainly evident. Inspect carefully the knees, to see that they are not "sprung" (clergymen's knee) or scarred on the front from stumbling. Below and on the inside of the leg, splints frequently are found, but generally they are of little importance in young animals. "Wind puffs," ringbones, enlarged tendons, evidences of "firing" or of operations for neurectomy (nerving), interfering, or the use of cocaine hypodermically, to disguise lameness, all should be looked for. On either side of the top of the heel the lateral cartilages should be examined for "sidebone."

The foot should be of good size and shape, free from rings of horny growth, and the wall not concave. The heels should not be contracted. The wall should be carefully examined for sandcracks, quarter-cracks, and seedy-toe, the latter a softening and degeneration of the wall at the toe of the foot. The bottom of the foot should be examined for corns, the cleft in the frog for thrush, and the sole for bulging.

Defects of Rump and Hind Legs

After finishing the fore leg, the examiner should go carefully over the horse's side and belly, looking for tumors, sores, hernia, and rupture. In the male, the penis and sheath should be examined for tumors or disease. The scrotum in males always should be examined for tumors, while geldings must be scrutinized, to be sure that they are not "ridglings," or cryptorchids. In examining the hind legs of a strange horse, it is always well to take precautions against being kicked, by having an assistant hold up one of the animal's fore feet.

The muscles of the hip should be examined for scars, the stifle-joint, and for any enlargement or soreness that would indicate stifle. A thorough examination should be made of the hock-joint, because of the number and importance of defects that may occur in this region. The back of the hock-joint should be examined for capped hock, curb, and scars that may indicate the animal to be a kicker. Just in front of the point of the hock, look for thorough-pin. The hock-joint proper is to be examined for spavin, both bone-spavin and bog-spavin; also for any enlargements and for irregularities of movement. Below the hock, look for wind-puffs, ringbones, scratches, and diseases of the foot. After completing the examination of one side, go over the opposite side with equal care.

Other Points to Be Observed

After thus going over the entire horse, the examiner should carefully compare corresponding members with regard to their symmetry and form. The two hips should be compared, to see that one is not "knocked down" or "hipped," and that the muscles are equally developed. The tail should be carried squarely; it should be handled and a line or rope drawn under it, to prove that the horse is not vicious in this respect. The nostrils, lips, eyes, and ears should be compared, and any signs of paralysis or drooping of the parts noted.

After examining, manipulating, and comparing the parts of the animal, it should be thoroughly tested in its paces. The horse should be driven, or, with plenty of rope, led to and from the examiner, and then moved by him at a good, free trot; any signs of lameness or peculiarities of movement being discoverable in this way. Turning the horse sharply to the right or to the left, so as to bring the weight alternately on the right and the left legs, generally will increase the signs of lameness.

The horse should also be tested as to its ability and willingness to back a load. In testing for the wind, the horse should be allowed a full drink of water, then by some one else ridden or driven rapidly for some distance, and then brought to a sudden stop, close to the examiner. The latter now will look for any abnormal sounds or movements in breathing.

A "wind-broken" horse can be detected by the peculiar roaring or whistling heard as the air is breathed in. In heaves, there

usually is difficult breathing, with a peculiar bellows-like motion of the flank. By pinching the animal's throat, the peculiar and characteristic grunting cough of heaves will be emitted. The horse should also be tested as to whether it eats and drinks properly.

The ability to detect unsoundness can be greatly increased by practice and close observation; nevertheless, some diseases and vices can not be detected by an ordinary examination, and it is only after a person becomes familiar with the animal that these will be discovered. In purchasing horses, allowance at all times must be made for these uncertainties.

[*To be continued*]

The Action of Sparteine Sulphate in Laboratory Experiments

A Rejoinder to Doctor Pettey

By Leslie Byron Wiggs, M. D., Richmond, Virginia

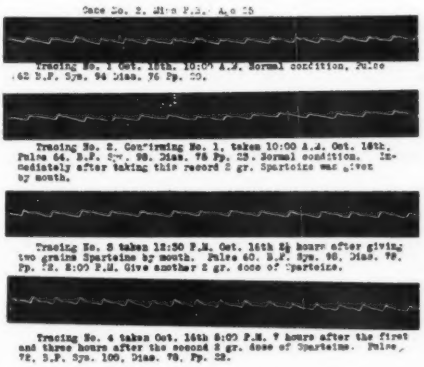
DR. GEORGE E. PETTEY, of Memphis, Tennessee, in The American Journal of Clinical Medicine (January, 1915, p. 46), in a review of a monograph by me on the action of sparteine sulphate*, takes issue with most of my findings. If it were not for the high standing of Doctor Pettey in his profession, I should not deem it necessary to attempt a reply. When, however, an authoritative article appears, it should be scrutinized with utmost caution and thoroughness, and opinions expressed only after the most careful consideration. In this light, I have reviewed his work, and still find it necessary to hold to my previously expressed opinions, and I, therefore, shall attempt to show that he has not proven his case.

The chief criticism of my article is based upon the fact that the tracings shown by me were made from the lower animals, rather than from the human subject, and, hence, are not to be considered reliable when applied to mankind.

I wish to make it perfectly plain that I do not concede this point. It is based largely upon a faddish theory, rather than on proved truths. I do not consider that the tracings submitted by Doctor Pettey prove a single point made by him, nor do they disprove any hypothesis proposed by me. If he intended them to prove that sparteine sulphate in full dosage does not depress the heart in normal human beings, his tracings are not conclusive evidence of the fact, and neither do they support his theory of an increased cardiac tone. His data are too incomplete.

In each of his cases from which tracings are shown, there is an apparent lowering in the blood pressure, which, however, is not shown in the blood pressure estimations (there is no fall in the blood pressure); which, as is well known, should be concomitant with the sphygmographic record of such. Such a result could come from faulty adjustment of the instrument.

Further, there is no slowing in the pulse rate, which probably would be present had the sparteine caused the results; for, clinicians and pharmacologists are about agreed


Tracing No. 1 Oct. 16th. 10:00 A.M. Normal condition. Pulse 62 B.P. Sys. 94 Dias. 76 Pp. 18.
Tracing No. 2. Confirming No. 1, taken 10:00 A.M. Oct. 16th. Pulse 64. B.P. Sys. 98. Dias. 75 Pp. 23. Normal condition. Immediately after taking this record 2 gr. Sparteine was given by mouth.
Tracing No. 3 taken 12:30 P.M. Oct. 16th 2½ hours after giving two grains Sparteine by mouth. Pulse 60. B.P. Sys. 98. Dias. 78. Pp. 22. 3:00 P.M. Give another 2 gr. dose of Sparteine.
Tracing No. 4 taken Oct. 16th 6:00 P.M. 7 hours after the first and three hours after the second 2 gr. dose of Sparteine. Pulse 72. B.P. Sys. 100. Dias. 78. Pp. 22.

that one of the dominant actions of sparteine is the increase in vagal tone.

As a matter of fact, I believe that it would take considerably more than the ordinary therapeutic dose of any depressant drug to produce apparent cardiac depressant effect in normal individuals. Members of the methane series, for instance, such as hydrated chloral and also the coal-tar products, when given in sufficient amounts, will produce cardiac depression, but an ordinary therapeutic dose probably never does in normal hearts. Their

*Old Dominion Journal of Medicine and Surgery, May, 1914.

chief danger lies in giving them to individuals with damaged hearts or to those having a peculiar susceptibility to the drugs.

In analyzing his cases reported, we will take case No. 2 as fairly illustrative. In this, we find the normal conditions as follows:

Pulse rate, 64; blood pressure, systolic, 98, diastolic, 75; pulse pressure, 23.

Two and a half hours after giving 2 grains of sparteine by mouth we find the following:

Pulse, 60; blood pressure, systolic, 98, diastolic, 78; pulse pressure, 20. Whereas, the tracing shown indicates a fall in the pressure.

This kind of a record could not be produced by a relaxation of the vessels, unless there was a concomitant *fall in the blood pressure.* If the vessels relax and the heart contracts more forcibly and compensates for the fall in pressure, that otherwise would occur, then the vessels still remain filled, so that a sphygmographic record would be that of the normal condition, that is, would undergo no change. Therefore, I cannot reconcile Doctor Pettey's statement, that "it adds tone to the heart-muscle and increases the force of its action, while at the same time, by dilating the arterial capillaries, etc.," when his tracings indicate that the pressure has fallen, while his sphygmomanometer estimations show that the *pressure has* not materially changed. His sphygmomanometer results and his sphygmographic tracings contradict each other. Incidentally, a sphygmograph at its best is a very poor instrument from which to draw valuable clinical conclusions.

Conclusions

1. Doctor Pettey has offered no evidence that proves that "sparteine sulphate is a powerful and positive cardiac tonic."

2. His tracings do not show that the "arterial capillaries are dilated"—they rather indicate a fall in blood pressure; which, however, is not indicated by his sphygmomanometer.

3. He has not proved that sparteine sulphate does not depress the heart. He may have shown by his sphygmomanometer that it did not cause apparent cardiac depression when given in one or two doses to individuals with normal hearts.

4. He has not proved that the action of sparteine sulphate on the cardiovascular and renals systems of dogs and frogs is not similar to its action on the human subject. He hinted at such an hypothesis, but offered no definite evidence to support the theory.

210 E. Franklin St.

Medical Abstainers Called For

By T. D. Crothers, M. D., Hartford, Connecticut

THE following incident is unmistakable evidence that laymen are making discriminations and drawing sharp lines in selecting medical men.

A wealthy manufacturer had an only son taken ill with appendicitis. The family physician, not wishing to take the responsibility, advised that a very distinguished surgeon should be called in. The surgeon arrived on a cold winter's night and was seated in the parlor. The manufacturer came in, was introduced and, after looking at the caller very sharply, said: "I regret intensely, but I cannot avail myself of your valuable services. For thirty years I have employed many hundred men in my business, and I have made it a rule never to permit anyone with an alcoholic breath to perform any responsible work for me; and I can not depart from this rule now. I shall pay you your fee and you may return by the next train."

The surgeon was astonished and confused. The night was cold and he had taken a glass of spirits to steady his nerves. He was not a drinking man, but occasionally he drank in an emergency, and considered himself temperate. The family physician performed the operation, which was successful; and the surgeon no doubt realized that a change had begun in public sentiment regarding the danger of men with alcoholic breaths.

Another incident was that of the manager of agencies for a large insurance company, who called on one of the general examiners, a physician of considerable prominence, who had examined for the company for a great many years. The physician was a surgeon and had just come from the hospital. His breath was strong of alcohol and his manner was boastful and effusive. The manager listened to him for a little while. A few weeks later a notice from the company indicated that his services would be no longer needed. He was very much astonished and demanded some explanation. After some correspondence, he was told that the company had decided not to employ any drinking

men as examiners. He was still more incensed when a young man known as a total abstainer took his place. He denied being a drinking man, but had to acknowledge that he drank after the strain of surgical operations.

These are conclusive hints that the moderately drinking doctor is disappearing from active service. The oldtime legend, that such men were very often far more acute and reliable after using spirits than before, is also passing away.

Business men everywhere demand the very best services from persons whom they employ and are growing more and more distrustful of anybody who uses spirits, no matter in what degree. Persons occupying responsible positions are scrutinized very carefully concerning their habits, particularly of the use of spirits, and very often are rated on this quality alone.

The mercantile agencies and the bonding companies, who are probably the sharpest observers of conduct and habits in the active business world, rate drinking men very low, and the bonding companies frequently refuse to carry them at any cost. This is the result of experience and is based on no theories or sentiment. Persons who handle finances and are responsible to others are weeded out very quickly upon the slightest suspicion of having drinking habits.

Even drinking families who have wine served at the table are beginning to call for total-abstaining physicians and drop the convivial doctor who is ever ready to join them in the social glass.

A financier who left a large sum of money to a hospital suddenly withdrew his legacy. When pressed for an explanation he declared that many of the staff of the hospital were drinking men and their work would necessarily be inefficient and careless, and in the business world he would not put in any money where drinking men would have any kind of control. It was too risky. He would renew his legacy, with great additions, if the hospital authorities would accept it with the provision that all members of the staff should be total abstainers. This has been under consideration for the last year.

The president of a railroad company found his wife at a seaside resort being treated by a very eminent expert. At the table he noticed that this physician ordered a bottle of wine and later he saw him take a drink in the barroom. He discharged him at once, and when questioned by his friends answered: "I should not allow a switch- or a tower-man on my road to use spirits and I have given orders that they be discharged the minute they are found guilty. How much more important it is, that I should guard my family from the dangers of this source."

Incidents like these are increasing all over the country. Medical men trained to give the best service on health matters are called for. The unhealthy, the beer-drinking, the alcoholic, and tobacco-smelling doctor repel the intelligence of the man or woman who are lookipg for ideals. There is no sentiment in this, and it may not be expressed, but it is growing constantly. At one of the large hospitals a man who was to be operated upon made a special request that the operating surgeon should be an abstainer and that he should take no spirits before the operation. He evidently had some knowledge of the habits of surgeons in the hospitals, and it is altogether likely that his request was complied with. It used to be a common thing for surgeons and visiting doctors to take spirits preceding and after the day's work was over, and this explained the spirit bills which were far in excess of the natural demands from patients.

There is great chance for improvement in this direction. In private practice, the success or failure of many medical men has turned on their drinking-habits. In some sections where the sentiment of prohibition is very strong, and in every section, business and thoughtful men realize that the use of alcohol for tonic and stimulant properties is a very uncertain and dangerous thing.

The modern doctor will have to be careful of himself and of his ideal of health before he can build up a patronage. A great deal of the injury comes from faults in medical teaching. There is not a college in the country in which some of the professors and teachers are not moderate or excessive drinkers. Their examples are fatal to the prosperity of the coming medical man. They belong to an older class of men, who are not yet free from the delusions and paganisms of the past. Some of them still teach that alcohol has a power and is a stimulant. Others are noncommittal. A popular teacher who takes wine at the table and is seen drinking spirits in the club and is known to the student as a convivial man is exerting a very dangerous influence.

Not far away in the future medical men will be called for who represent in themselves the highest types of physical and mental health. Colleges and training will be of minor consideration compared with a robust, temperate, common-sense, strong man.

What Others are Doing

METHOD OF DIAGNOSING DISEASE OF THE LUNG-APEX

In the opinion of R. Ehrmann, of Berlin (*Berl. Med. Woch.*, 1914, No. 35), the frequent difference in the irritability of the dilator pupillæ muscles of the two eyes often is markedly augmented when the apices of the lung (either one or both) are diseased, as becomes evident when the oculomotorius muscle has been paralyzed by the ingestion of atropine.

A SIMPLE TREATMENT FOR FELONS

A method of treating felons that is very simple and said to be very satisfactory, is described by Beverly Robinson in *The New York Medical Journal* for June 27, 1914. He advises applications of a mixture of equal parts of glycerin and a saturated solution of magnesium sulphate, this being applied by means of gauze saturated with it, covering the dressing with absorbent cotton and thin rubber tissue, held in place with a gauze bandage. This dressing may be removed from time to time, and, after soaking the fingers in a hot borax solution for fifteen or twenty minutes, the glycerin and magnesium sulphate may be reapplied.

Doctor Robinson goes through this routine of redressing and soaking in borax solution some two or three times every twenty-four hours. When the inflammatory process is under control and recovery seems assured, applications of zinc-oxide ointment may be made every night at bedtime.

ETHYLHYDROCUPREIN (OPTOCHIN) FOR CREEPING ULCER OF THE CORNEA

In a contribution to the *Deutsche Medizincssche Wochenschrift*, 1914, No.35 (cf.*Muench. Med. Woch.*, 1914, No. 37), M. Schur reports his experience with ethylhydrocuprein (optochin) in the treatment, at the clinic of Tuebingen, of pneumococcic ulcus corneæ serpens—positively pneumococcic infection, 35; presumably so, 3; mixed 2. There was no actual failure to cure in 34 of the positive cases, but in 30 healing was rapid under the cuprein applications alone; the 3 presumptive cases also were promptly beneficially influenced; while in the two mixed cases action was less energetic and had to be supported by zinc applications.

The treatment should be instituted as early as possible. It is important to remember that the solution should be freshly made; hence, be prepared in only small amounts. If the diagnosis is uncertain (bacteriologic tests being unattainable), the practioner may proceed prophylactically, by instilling into the eye a solution containing 1-2 per cent of zinc (sulphate?), in addition to 2 per cent of cuprein; for, nearly all serpiginous ulcerations are caused by pneumococcus and diplococcus invasion. The cuprein does not, in general, relieve the accompanying iritis.

SUGAR AND CHARCOAL AS A WOUND DRESSING

While sugar of late is being introduced (Magnus) as an antiseptic for wounds, A. Koehler, of Berlin, now points out (*Deut. Zeit. f. Chir.*, 1914, No. 4) that this practice was in vogue in India as long ago as 300 to 600 A. D. Charcoal, now again introduced by Hammer, for the same purpose, also was in use long ago, although at a later period than sugar dressings.

SACCHARIN IS NOT HARMFUL

As doubtless every reader of CLINICAL MEDICINE knows, the use of saccharin in food products is forbidden by law. However, it is believed the consensus of opinion among really scientific men is that when saccharin is used in foods in reasonable quantities, it is perfectly harmless. Evidence to this effect is accumulating; and this fact is emphasized in a paper by Dr. Charles E. Caspari, professor of chemistry in the St. Louis College of Pharmacy, published in the February, 1915, number of *The American Food Journal*.

This writer cites the investigations of the Referee Board, of the United States govern-

ment, which investigated the alleged harmfulness of saccharin and finally came to the conclusion that quantities of this substance up to 0.3 Gram (4.6 grains) per day can be ingested without injury to one's health. When large quantities of saccharin are taken, say, for instance, 1 gram (15.4 grains) daily for a considerable period of time, especially when continued for months, the Referee Board admitted it might induce disturbances of digestion. Inasmuch as saccharin is 550 times as sweet as sugar, the 4.6 grains of saccharin mentioned above would have a sweetening power of 5.8 ounces of sugar, an amount much more than is likely to be consumed daily by any ordinary individual.

Even more striking is the report recently promulgated by R. O. Neumann of the German Institute of Hygiene, who, at the request of Lehmann, of Wuerzburg, carried on an extended series of experiments designed to determine the harmfulness or harmlessness of saccharin in foods. His conclusion is, that 3 1-2 Grams of pure saccharin — corresponding in sweetness to 1575 Grams (nearly 3 1-2 pounds) of sugar—can be taken daily without producing diarrhea or increasing the quantity of urine, the amount of urea, the quantity of feces, or the nitrogen in the latter. The changes in the food were the same when the saccharin was taken as when it was not, and bad symptoms, such as headache, malaise, repugnance to food and vomiting, were absent. Neumann's conclusions, therefore, were, that saccharin is an absolutely harmless condiment, which, in the quantities likely to be used, can in no way injure the health.

In a recent number of *The Vaterland*, the statement is made that in the socalled "iron rations" allowed each soldier, for use only in case of necessity, a certain amount of saccharin is included as a sweetener. Caspari asks whether it is likely that the German government would equip its soldiers with a harmful product at the very time when they need wholesome food?

Doctor Caspari looks upon saccharin as a condiment, belonging to the same category as pepper, mustard, and spices, the purpose of which is, with incident specific stimulations, to improve the taste of food. It is not a food, and should not be used as a nutritive substitute for sugar. In the quantities likely to be employed, saccharin really is less likely to do harm than vinegar, common salt or sugar, all of which when ingested in large amount are known to be liable to produce indigestion, diarrhea, and even more serious disturbances of health.

DIABETES AND PYORRHEA

We find in the January number of *The Dental Cosmos* an excellent abstract of an article by Dr. Julian Zilz, originally published in the *Zahnaerztliche Rundschau* for November 8, 1914. The author makes a study of 100 diabetics, belonging mostly to the working classes, who had received dental treatment in but few instances. It was found that 71 out of the 100 suffered from alveolar pyorrhea. In 47.8 percent of these, the pyorrhea preceded the diabetes; in 25.3, the pyorrhea appeared simultaneously with the diabetic symptoms; while in 9.8 it followed immediately after.

The author quotes Kranz as pointing out that the presence of pyorrhea alveolaris suggests disturbed carbohydrate metabolism, and he calls special attention to the value of the pyorrhea symptoms, as indicating the possibility of diabetes, in other words, as being a diagnostic sign worthy of serious investigation.

The investigations of Zilz immediately bring us back to Talbot's studies of the relation between hyperacidity (acidemia) and the etiology of pyorrhea. We all know the readiness with which diabetes is manifested by acid disturbances of various kinds. The importance of alkaline treatment, both for pyorrhea and for glycosuria, seems to receive further emphasis from these investigations; and this fact does not minimize in the slightest the importance of giving emetine treatment to every patient suffering from pyorrhea alveolaris.

MORE ABOUT EMETINE IN PYORRHEA

Some more very interesting clinical research-work on the use of emetine in the treatment of pyorrhea is reported by Evans and Middleton in *The Journal of the American Medical Association* (Jan. 30, 1915, p. 422). Of 70 pyorrhea cases in which the ameba was shown to be present, 54 were treated by injecting into the gingeval pockets a 1-2-percent emetine-hydrochloride solution, and marked improvement followed in virtually every case. The period of treatment varied from four to twelve days, with an average of about seven. In a few instances, the patients complained of tenderness of the gums, but in the majority of them there was less pain

and less bleeding when the teeth were being brushed.

These gentlemen, in addition to the local treatment, also gave subcutaneous injections of emetine; but this course was not instituted until after the local injections had been given a trial for some days.

Usually, after an interval of from several days to a week following the last administration, as a precautionary measure the subcutaneous course of emetine treatment was instituted. Two plans of dosage were adopted: (1) a series of small doses of the alkaloid (1-8 grain) daily for eight days; (2) a shorter series of larger doses, 1-2 grain being given the first day, and then, after an interval of a day, 1-4 grain on two successive days.

In addition to this course, the authors advise periodic subcutaneous injections at monthly intervals, continued for several months, so as to prevent any proliferation of encysted amebæ. Five patients were treated with subcutaneous injections alone, and with good results.

The authors seem to object to the rather large doses (1-2 grain) suggested by Bass and Johns. The latter gentlemen, however, insist that large dosage has caused no systemic discomfort. Our own criticism of the smaller dosage advised by Evans and Middleton is, that, when a drug such as emetine is used for its amebicidal action, it is desirable that it be given in dosage large enough to secure saturation of the blood with the alkaloid. If emetine is well tolerated, the 1-2-grain dosage would seem to the writer to be preferable.

PYORRHEA AND ITS CONSTITUTIONAL SEQUELS

One of the most interesting points in the paper of Evans and Middleton just quoted is the study of the constitutional disturbances following interstitial gingivitis of amebic origin. They found that 52 of their 70 pyorrhea patients displayed constitutional symptoms of more or less marked degree.

These cases were divided into four groups: (1) arthritic, (2) neuritic, (3) digestive, (4) hemic, and (5) miscellaneous. The largest of these groups was the arthritic, which included 26 individuals, or 50 percent of the patients presenting constitutional symptoms. Of the others, 6 persons presented neuritic symptoms, 2 suffered from obscure digestive disorders, 6 exhibited various grades of anemia, and the rest had miscellaneous complaints.

Especially interesting is the report of results following emetine treatment in the cases cited above. For instance, of 19 cases of arthritis treated with emetine, there was no apparent improvement in 4, unmistakable improvement in 12, while in 3 results were indifferent. The report of the cases of neuritis was unsatisfactory, because 5 out of the 6 could not be followed during their subsequent course. The single one who was followed did not show decided improvement. The 2 patients presenting digestive symptoms both were greatly improved following local treatment with emetine, still further improvement being noted in the one patient who received the emetine hydrochloride subcutaneously.

In 2 cases of pernicious anemia, the individuals could not be followed closely enough to determine results. A gain of up to 500,000 in the total number of red blood-cells was established in several cases of secondary anemia following the emetine treatment.

In other complications, good results were obtained. For instance, one case of obstinate headache responded quickly after relief of the pyorrhea with the emetine. In another case, splenic enlargement was decidedly reduced after treatment of a severe pyorrhea with emetine. A number of other interesting cases are reported by the authors, in which a greater or less degree of improvement followed medication of the kind described.

LOCAL REACTION FOLLOWING SUBCUTANEOUS INJECTION OF EMETINE

We have received from several of our readers reports that occasionally there is considerable reaction at the point of injection of emetine hydrochloride when administered subcutaneously. This may be explained by the experience of Evans and Middleton (*Jour. Amer. Med. Assn.*, Jan. 30, 1915, p. 422), whom we quote as follows:

"The question of local reaction on the subcutaneous injection of emetine hydrochloride in our cases has been most interesting. For instance, a case of arthritis whose pyorrhea has been cleared up by local treatment will show no reaction at the points of subcutaneous injection of two successive 1-2-grain doses of emetine. On the third or fourth dose of only 1-4 grain, a most marked local reaction, in the form of a wide, indurated areola of inflammation about the point of injection occurs. This local reaction

may be attended by a temporary exacerbation of the general symptoms, usually followed by a marked improvement.

"We have been led to think of this reaction as an index of a point of saturation, when, with the death of numerous amebæ, the strength of emetine in the blood having reached a lethal point, a great amount of bacterial and possibly amebic toxin is liberated. Of course, this explanation is tentative, and subsequent observations may rule it out; but, the alleviation of the general symptoms succeeding such an occurrence strongly supports this view."

EMETINE IN BRONCHITIS AND TUBERCULOSIS

Dr. James A. Raeburn has had an interesting experience with emetine hydrochloride, which he has employed in more than 40 cases of bronchitis and tuberculosis. His report appears in *The British Medical Journal* for March 28, 1914 (p. 703). Especially interesting is his experience with this drug in cases of simple bronchitis in which there is no evidence of tuberculous infection.

These cases, Doctor Raeburn declares, nearly always improve rapidly under emetine, provided there is no impairment of the heart's action. The expectoration disappears, and on auscultation moist sounds cease to be heard. This improvement is not transitory, but persists after the emetine injections are discontinued. Together with the improvement in the local condition, there is almost invariably improvement in the general state, the patients voluntarily stating that they have felt better since the emetine was taken.

Doctor Raeburn puts considerable emphasis upon the condition of the heart's action. If this is weak, he says that the bronchitis does not improve when this remedy is used. If there is such weakness, it must be remedied before the drug is resorted to.

Only in one instance was the emetine pushed to the point of nausea, this, however, passing away quickly as soon as the drug was withheld. No other undesirable effects have been observed.

One interesting case of bronchitis is cited, this occurring in a child of nine. Cough and expectoration (the latter being copious) had persisted for several months. No tubercle bacilli were found, and the von Pirquet test gave a negative reaction. During three weeks the injections of emetine were given twice weekly, and after the last injection the breath-sounds were clear and the cough gone. No other remedy was administered.

In treating these cases, Doctor Raeburn uses rather small doses of the emetine, which he gives hypodermically. The contents of an ampule, containing 1-2 grain of emetine hydrochloride and 15 minims of distilled water, are diluted with 4 parts of sterile water. Of this dilution, 4 minims is given at a dose when the object is, to control expectoration or lessen congestion. This would be equivalent to 1-40 grain of emetine hydrochloride at a dose.

Doctor Raeburn is in agreement with Doctor Flandin in the opinion that emetine has a particularly powerful action upon congestive conditions of the lung, whether these be pretubercular or tubercular. He also reports his experience with cases of tuberculosis, in which emetine also was found quite effective, particularly in the earlier stages of the disease, before tubercle bacilli are found in the sputum.

EMETINE CONTROLS THE HEMORRHAGE FOLLOWING NASOPHARYNGEAL OPERATIONS

The first report of the use of emetine for controlling hemorrhage following nasopharyngeal operations is made by Dr. Joseph Weinstein, in *The Medical Record* for January 16, 1915 (p. 102). He reports 12 cases in which this alkaloid was successfully employed for this purpose, being given during and after operations upon the nose and throat. In each instance, 1-2 grain of emetine hydrochloride was given hypodermically. In only one case was the drug given prior to operation. This was for a tonsillectomy performed under local anesthesia. No hemorrhage followed. In the remainder of the cases the drug was injected after operation. Here are some of them:

One woman, who had bled profusely when operated upon for polypi several years previous, so that posterior packing was necessary for forty-eight hours, was operated upon at the present time for polypi and for disease of the ethmoid bone. In this instance, there was practically no hemorrhage.

Another woman gave a history of being a profuse bleeder. She was operated upon this time for chronic suppurative ethmoiditis, emetine being employed. As a result, there was practically no hemorrhage. The packing was removed after six hours, with slight oozing, which subsided in twenty minutes.

Another patient, a man, after a previous nasal operation, had bled continuously for five days. This time, after removing the posterior ends of the inferior turbinates, emetine was injected, and there was no bleeding.

In another case, following a tonsillectomy performed by another physician, severe hemorrhage came on within five hours. Every ordinary means had been employed to check it, without success. Bleeding stopped within ten minutes after one injection of emetine.

In still another case, there was capillary bleeding from the septum, extending over a year's time. It would stop at various times, but always recur within two or three days. Various treatment had been employed unsuccessfully. Emetine was injected three weeks prior to the report, and at the date of writing there had been no recurrence of hemorrhage.

These cases are typical of Doctor Weinstein's report. In only one instance was there a recurrence of hemorrhage after the injection. This was an operation upon the inferior turbinates. No bleeding followed, and the patient attended the theater the same evening. However, profuse bleeding occurred the next morning when the packing was removed. So, a second injection of emetine was given prior to repacking. Hemorrhage ceased in five minutes, and, hence, repacking was found unnecessary.

Doctor Weinstein says that he is not prepared to make the positive statement that emetine will control all such forms of hemorrhage, but his results have been so striking and so satisfactory that he is anxious that fellow workers in the field of rhinology and laryngology try out this remedy, which, if it is found efficacious under such circumstances, will be of inestimable value and benefit to mankind.

EMETINE USED IN FRANCE TO ARREST HEMORRHAGE FOLLOWING GUNSHOT WOUNDS OF THE CHEST

Emetine hydrochloride is certainly a wonderful remedy. It cures dysentery, cures pyorrhea, and it arrests hemorrhage—all kinds of hemorrhage, so it seems. In the preceding article we gave the experience of Doctor Weinstein, of New York, who is using this alkaloid to prevent and arrest hemorrhages following operations upon the throat. Since reading the preceding it has just come to our attention that emetine hydrochloride is being used by French army surgeons to arrest the hemorrhage following gunshot wounds.

At a meeting of the Medical Society of the Hospitals (Societé Medicale des Hôpitaux) Dupont and Troister gave their experience with this drug. Having observed that the ordinary methods of treating hemoptysis following wounds of the chest were of limited value, it occurred to them that the antihemorrhagic properties of emetine might prove useful in cases of this kind, being led to this conclusion by the knowledge of its remarkable efficiency in checking hemoptysis occurring during tuberculosis. Accordingly, in three soldiers suffering from penetrating gunshot wounds of the thorax, they made trial of subcutaneous injections of emetine hydrochloride. From the first, the hemostatic action of the remedy was manifested. The spitting of blood was arrested after one or two injections of .04 Gm. (2-3 grain) of this alkaloidal salt. Mery, who discussed the paper, stated that in case of hemothorax, following the injection of emetine he also observed rapid disappearance of the signs of anemia, of the fever, and even of the local signs.

WILL EMETINE CURE PSORIASIS

There are few diseases more common and more resistant to treatment than psoriasis; and, yet, as Pusey says in his work upon "The Principles and Practice of Dermatology," "concerning its essential cause we know nothing." About all there is to be said relative to its etiology is summed up by Stelwagon in the following words: "While it is true that the attacks [of psoriasis] often occur in those of visibly robust habit, yet a careful examination will usually disclose that this is more apparent than real; in such patients defective kidney elimination, gouty and rheumatic tendency, digestive disturbances, and in some not infrequently excessive indulgence in alcoholic stimulants are factors of importance."

In view of our ignorance of the cause and our inability to find a real cure for psoriasis, the announcement made by Dr. Wm. R. Chapin, a Savannah (Georgia) dentist, in the February (1915) number of *The Dental Cosmos*, is of peculiar and extreme interest. Doctor Chaplin treated with emetine, applied orally, a case of psoriasis of 15 years' standing. The patient had taken treatment from numerous physicians without special benefit. There were patches on the backs of both hands, on both arms and upon other portions

of the body. The sufferer declared that he had taken every known remedy, with but very little if any benefit, and he had finally become so discouraged that he had given up all hope of ever being cured.

Then came Doctor Chaplin with the emetine treatment of pyorrhea. We will give Doctor Chaplin's further experience in his own words:

"In the treatment of his teeth for pyorrhea, I followed the course prescribed by the originators of the treatment already mentioned, and after the third treatment the patient voluntarily called my attention to the lack of itching and the apparent improvement in his skin disease, and voluntarily expressed a desire to have some of the emetine injected under the skin of the hand—indicating the benefit recognized, after the third treatment, by the patient himself. I did not comply with his request, but continued to treat the gums locally as before stated until the full course of treatment as prescribed was finished. At the present time, six treatments having been given—and it being now two weeks since the last treatment—every symptom of psoriasis has entirely disappeared."

The idea which will immediately occur to every reader of these lines undoubtedly is that psoriasis may prove to be a disease of amebic origin. No doubt research workers everywhere will be encouraged to study the disease anew with this thought in mind. No doubt, also, thousands of physicians who are called upon to treat psoriasis will see what can be accomplished with emetine hydrochloride. Probably best results could be secured by injecting it hypodermically in 1-2- to 1-grain doses. We hope that many readers of CLINICAL MEDICINE will feel impelled to give the remedy a trial in some of their cases. Since psoriasis is one of the most common of all skin diseases, there can be no lack of clinical material; and since the remedy is a harmless one, there should be no lack of patients to submit to the "cure."

POSITION INFLUENCING BRACHIAL NEURALGIA. TREATMENT

There are cases when the position of the head assumed at shaving arouses pain around the scapulohumeral juncture, and this, according to O. B. Meyer, of Wuerzburg (*Berl. Med. Woch.*, 1914, No. 36), may be of diagnostic significance. When this phenomenon proves refractory to treatment, and particularly if the pain is severe, radiograms of the plexus involved and the cervical vertebrae should invariably be obtained, in order to discover any possible new-growth or displacement, which demand surgical intervention.

When a brachial neuralgia is acutely severe, injection-therapy should be considered, the injections being made paravertebrally or epidurally along the cervical column, or else near the peripheral nerves. The author also mentions algokratin (among the newer proprietaries) as having served excellently in this as well as other forms of neuralgia. "Algokratin de Lascosme" is a French specialty, and a writer in the *Muenchener Medizinische Wochenschrift* (1914, No. 37), asserts that it is composed of phenacetin, 50; pyramidon, 40; caffeine, 10; and that such a mixture yields exactly the same results.

PNEUMOCOCCIC FACIAL EDEMA

A peculiar case of edema of the face and labial mucosa has been reported by Doctor Weissbrem, of Hamburg (*Muench. Med. Woch.*, Sept. 15, 1914). The subject was an 84-year-old man sick with croupous pneumonia. The edema, of high grade, appeared on the third day. The blood of the patient was demonstrated to be sterile; however, the fluid of the edema contained pure culture of pneumococci. While positive diagnostic criteria of erysipelas were not in evidence, still, the appearance was sufficient to mark this as a case of real erysipelas, inasmuch as redness and sharp delimitation are not invariable features of this process; while pneumococcic erysipelas has been known to occur, although quite rarely.

A NEW ANTISEPTIC MERCURIC-CHLORIDE TABLET

In spite of the criticism to which it has been subjected, mercuric chloride (corrosive sublimate) is still the most popular of antiseptics for the treatment of wounds. Thomas Lissaman proposes (*Lancet*, Dec. 19, 1914, p. 1438) a new combination of this powerful remedy in a form which he believes to be superior to those heretofore in use. The formula which he employs is as follows:

Mercuric chloride	grs. 4.375
Calcium chloride	grs. 1.86
Sodium chloride	grs. 34.76
Potassium chloride	gr. 0.075

This combination is made up into a 40-grain tablet. This compound is very hygro-

scopic and must be kept dry. One tablet dissolved in a pint of cold water forms the ordinary antiseptic solution habitually employed by the author in treating wounds of the hands, feet, head and exposed parts generally. A weaker solution will serve for delicate skins.

The advantages claimed for this tablet are, first, that the mercuric chloride in this combination does not combine so firmly with the albumin as when used alone, as ordinarily employed, when it forms an albuminate of mercury, which renders it unsuitable and ineffective for the treatment of recent wounds. Furthermore, through the addition of calcium chloride, more rapid coagulation of the exudate from the wound takes place; such coagulum forming a tenacious clot, in which bacteria will not grow, while plugging the vessels and wound at once. Another advantage is, that it can be used with cold water, on account of its ready solubility. Yet another advantage, but to which Doctor Lissaman does not allude, is the fact that, when made into 40-grain tablets, the antiseptic hardly is likely to be swallowed accidentally, as when the tablets are of the ordinary size.

Doctor Lissaman describes as follows the method of utilizing these tablets:

"A man sustains a crushed hand at his work by being caught in a machine. His fingers are severely lacerated, he has compound fracture of several bones, tendons are exposed, and so on. No attempt whatever is made mechanically to cleanse the wound. Any obvious gross foreign bodies are removed; the hand is dipped for five minutes in the *cold* solution; the parts are very gently pressed into something like normal position; all active bleeding points are compressed with forcepses —no ligatures should be used. The whole of the injured area—that is, every particle of raw surface—is carefully covered with thin pure guttapercha tissue. A small amount of wood-wool wadding is saturated with the solution and firmly pressed over the guttapercha tissue. The whole of the injured part is then covered with an ordinary bandage; the object aimed at being, to put on the *minimum* of dressing. The bandage should not be tight, but it should be firm. Finally, the hand (bandage and all) is dipped into the solution. Tablets are given to the patient, one of which he is told to dissolve in a pint of cold water and to immerse the hand (dressing and all) at intervals of six hours.

"Such a dressing, blood-stained and dirty as it may become, can be kept on for three or four days without any risk of infection of the wound. My practice when there is much oozing in a bad wound is, to change the dressing in twenty-four hours and to wash the whole injured area in the solution, then to deal with the wound according to its requirements—to suture the skin, to adjust broken bones, suture tendons, and so on.

"I never use a splint in such an injury, but I encourage the man to move his fingers from the beginning. No swelling will occur, no redness nor pain; but the skin which has been subjected to the action of the solution will be wrinkled, bleached, and soft, so that the cuticle can be easily removed together with all dirt and foreign matter on the hand. The coagulated blood clot should be disturbed as little as possible. The continued application for days or weeks of the solution does not injure the living tissues, and it is remarkable how rapidly the wound will heal under its influence. It is essential to keep the raw surface moist with the solution and covered with the gutta-percha tissue throughout the healing process."

EXPEDIENT IN THE OPERATIVE EXTIRPATION OF VARICES

A simple helpful expedient in the surgical removal of small varicose veins is offered by R. Gutzeit, of Neidenburg (*Zent.-bl. f. Chir.*, 1914, No. 35). When operating, the smaller diseased veins frequently become indistinctly defined, particularly after the sterilizing application of iodine-solution to the locality. This difficulty Gutzeit overcomes by an ingenious trick. He cleanses the skin by rubbing it with cotton wet with alcohol, then he traces the diseased veins with an inky pencil (black) previously sterilized, and lastly paints the area with the iodine-solution. Result: the course of the veins is boldly-outlined upon the brownish underground.

MAGNESIUM IN THE TREATMENT OF TETANUS NEONATORUM

At a meeting of the Pediatric Society of Berlin, Doctor Falk spoke of his recent experiences with the treatment of tetanus of the newborn (*Muench. Med. Woch.*, July 28, 1914); which, however, he declared to be becoming so rare that he saw only 3 cases within the past four months. While, in general, prospects of a cure are very small, he said, he employed in these 3 cases hypodermic injections of magnesium sulphate in the man-

ner recommended by American physicians. Of the children in question, 1 still is under treatment, but the course nearly finished, while the other 2 recovered.

Speaking in general, Falk reminded his hearers that the first one to employ magnesium for this purpose was Doctor Meltzer. The action of this element is, to paralyze muscles and abolish sensibility; loss of consciousness and arrest of respiration may follow, eventuating in death. A lethal outcome, though, may be obviated by means of calcium chloride, hypodermically administered.

MAGNESIUM THERAPY SUCCESSFUL IN TETANUS OF ADULTS

Doctor Falk, in the address just instanced, also related his results in applying magnesium-therapy (particularizing 3 cases in grown persons). Here, the injections were made, some intraspinally, some subcutaneously, with no deaths following the latter method. The strength of the injections was, respectively, 5, 8, and 25 percent of the salt. In one case, in which the attack was mild, small amounts sufficed.

Magnesium (in the form of a soluble salt—sulphate) allays spasm; but this property is counteracted by calcium (introduced as a soluble salt—chloride). However, both these elements allay spasm in spasmophilia; presumably because the calcium acts upon the organism in some other manner. In the case of spasmophilia, the therapeutic attack must be directed centrally; while as to tetanus authorities do not agree. Meltzer recommends a combined narcosis with ether and magnesium sulphate, because the action is central. In states of depression, he assumes a disequilibrium between the magnesium and calcium in the system: he experimentally decalcified animals, whereupon small amounts of magnesium introduced yielded effects of the same intensity as normally would have required very much larger doses. A combination of magnesium with chloral, he surmises, might prove useful.

The speaker repeated the magnesium-sulphate injections only when the action was exhausted, as evidenced by recurring spasms; however, in the presence of high fever caution is enjoined, since then elimination is disturbed. Also, it is not advisable to inject magnesium sulphate in large doses in family practice; the speaker's own patients invariably having died under the circumstances, so that he has ceased to do so. In the case of his children, he observed intestinal irritation after injections of the calcium salt; once skin necrosis occurred after the injection of a 25-percent magnesium-sulphate solution, but no such trouble followed the 10-percent solution; severe intestinal disorder was not observed, although two or three times a day mucous stools were voided.

The speaker enjoined care never to permit the child to grow hungry during this course, trying to give food every quarter hour. At the height of the magnesic action, the children do not drink well, possibly owing to a partial paralysis. If feeding is neglected, spasms set in. He did not look for any causative microbes.

Several members participated in the discussion, during which the following points were made, not all being in agreement: (Finkelstein:) Tetanus neonatorum (true) is an infective disease. The prognosis improves as the period of incubation is lengthened. His patients recovered without magnesium-therapy; when used, the time of cure was not shortened, but it does prevent the dangerous sudden accesses, while also improving the prognosis. The deaths occurred during an attack, even in the stage of improvement. Superinfection (pneumococci) and inanition must not be overlooked. That the disease is infective, is evidenced by its clinical identity with that of tetanus of adults, as well as its prevalence in the unhygienic tropics; however, not all cases thus diagnosed are real tetanus. (Czerny:) That tetanus neonatorum is not of zymotic nature, is demonstrated by the curative effects attained with treatments not directed against infection. It is an idiopathic disorder of some newborn children, consisting in an extreme tendency toward muscular jerking. The disease attacks infants in tropical countries even under modern régime, when the navel is aseptically managed. In the adult, the tetanus bacillus is readily demonstrated. (Baginsky:) He saw a case of infantile tetanus in which he isolated the Kitasato bacillus.

PERISTALTIN AFTER LAPAROTOMIES

Peristaltin, in the opinion of S. Flatau, of Nuernberg (*Monatssch. f. Geburtsh.;* cf. *Ther. Monastsh.*, 1914, p. 581), ought to be given (intramuscularly) after every abdominal operation; that is to say, twenty-four hours afterward. This sentiment is based upon the author's uniformly good results observed from this practice. In this, the author is

supported by Doctor Voigt, of Goettingen, who prepared the abstract for the *Monatshefte;* only, the latter injects, intragluteally, immediately after severe laparotomies.

Flatau first tried peristaltin in a series of 25 cases, alternately with patients not so treated. Then he administered it in 80 additional, consecutive cases. Almost uniformly peristalsis was stimulated, so as to expel the intestinal gases.

PARACELSUS A TRUE "MEDICINAE DOCTOR"

Much has been written as to whether Paracelsus, the famous scientist-quack, was regularly graduated from a medical school, and, thus, entitled to assume the degree of M. D. Now A. Burkhardt, of Basel, comes out with the assertion (*Korr. f. Schweiz. Aerzte*, 1914, No. 28) that a new document has been unearthed, showing that Paracelsus was graduated from the school of medicine of the university of Ferrara, Italy.

ANAPHYLACTIC SYMPTOMS FROM THIOSINAMIN

Occasionally there is reported a case in which a sudden febrile reaction occurs after a number of injections of thiosinamin have been given. These occurrences may be referred (after excluding disease-phenomena and possibility of an impure preparation) to one of three causes—idiosyncrasy, the opening of an encapsulated tuberculous nidus, and anaphylaxis. One instance of the latter kind has been previously reported by Mendel, and to this Dethleffsen, of St. Georg Hospital of Hamburg (*Ther. d. Gegenw.*, Dec., 1913), adds another.

This latter case concerns a woman of 64 years who has been afflicted with cholelithiasis that resulted in peritonitis and subsequent painful adhesions. In 1909, fibrolysin treatment was instituted, but after the tenth injection fever and an intense measle-like exanthem broke out, so that the course was interrupted. While there was a slight amelioration of the adhesion-pains, thiosinamin again was resorted to in 1912. This time, after the third injection, the patient was taken sick suddenly with severe dyspnea and anxiety, and when three days later another dose was administered she also had a chill and her temperature rose to 39° C. (102° F.). These symptoms having completely subsided, an intragluteal injection again was made seven days later, and again there followed suddenly severe dyspnea, chill, and sense of anxiety, with a temperature of 38° C.; later, vomiting occurred. None of these phenomena persisted for more than two days. As to the adhesion-pains, the patient felt relieved of them.

The author carefully excludes all other possible causes of these accesses, leaving only the supposition of an anaphylactic state consequent upon the destruction of autogenous albuminoids; as demonstrated, for instance, by Stuermer, according to whom specific antibodies are generated upon the breakdown of autogenous albumins, which are capable of giving rise to intensely toxic combinations.

As to the fact that anaphylaxis causes falling of temperature (Rostoki), Friedberger and Leschke are cited to show that the presence of relatively large amounts of anaphylactic poison cause death, that less than lethal proportions reduce the temperature, but still smaller percentages give rise to elevation of temperature.

PHARMACODYNAMIC INFLUENCE UPON THE OPSONIC INDEX

Some preliminary data upon the influence of drugs exerted upon the opsonic index, as published by A. Strubell, of Dresden (in the *Med. Klinik*), are of a certain amount of interest even in their incomplete state.

These investigations seem to show that the presence in the system of iodides of alkalis, iodglidin, alkali bromides, bromglidin, adrenalin, pituitrin, and thyroidin depress the opsonic index in a like manner as does an injection of killed staphylococci, with a parallel subsequent positive phase. On the other hand, after the ingestion of arsenicals and of pankreone the opsonic index rises very decidedly, to be followed by the negative phase.

BENZOL IN POLYCYTHEMIA

The fundamental investigations by Selling, upon the influence of benzol upon the blood-cells, were suggested by the repeated observation that aplastic anemia follows after poisoning with that substance. Basing upon these facts, Koranyi introduced the now quite largely adopted benzol treatment for leukemia.

Since, however, benzol also destroys the red corpuscles, Kiralyfi has tried the same

therapy for polycythemia; and he now warmly recommends (*Virch. Arch.*, Bd. 213, H. 2 and 3) this measure to his colleagues, although he has used it in only two instances. However, the medication must be persisted in for some time. Strangely, the leukocytes are not affected under the circumstances.

One of the two patients treated was afflicted with severe nosebleed, going on three years, and suffered from dizziness and congestions of the head; his face was abnormally florid. He received 1 dram of benzol a day; but, being unable to bear it by the stomach, it was then administered rectally.

The other was a man of 49 years, showing that marked suffusion of the skin and mucosas, and troubled with headaches, congestion, dizziness, and other symptoms, but whose spleen was not involved. Placed on benzol, 75 grains per day, the polyglobulia rapidly diminished and with it the characteristic discoloration of polycythemia, as well as all the subjective symptoms. At the start, the blood-count showed 8,700,000 erythrocytes, but their number was at normal after three and one-half months' medication.

INTERMEDIARY CONVULSIONS

In an address delivered before the Pediatric Society of Munich, Doctor Husler (*Muench. Med. Woch.*, 1914, No. 38) discussed the so-called intermediary convulsions, by which, according to Oppenheim, are understood those forms of functional convulsions which do not bear the exact character either of epilepsy or of hysteria; but, declared this speaker, this conception must be taken very broadly, owing to the peculiarity of the infantile organism in the presence of a given endogen determination, so readily to respond to pathogenic irritation, with convulsions, loss of consciousness, and allied phenomena. And in this collective group must be included one syndrome that is characterized by a combination of the lordose symtom-complex with convulsive conditions of various kinds.

And this is not a mere casual association of the symptoms, but rests upon an intimate connection. Epilepsy can be excluded, owing to a complete absence of stigmata of degeneracy, bad heredity, and psychic defects; also, there are neither physical not mental indications pointing to hysteria. Those subject are mostly boys at school-age and puberty. Neuropathies and hereditary defectiveness almost always are absent. The subjects invariably are individuals inclined to vasomotor instability and subject to convulsions and occasional loss of consciousness. The seizure occurs at intervals of weeks or even months, following standing work, occasionally after emotional strain, but also without any recognized cause. No therapeutic measures are known that help; bromides and arsenic are without effect. Prognosis seemingly is favorable.

INFLUENCE OF ENDOCRINE-GLAND EXTRACT UPON RACHITIC INFANTS

In an address delivered before the Berlin Society for Internal Medicine, R. Bieling told of his observations (*Muench. Med. Woch.*, No. 20, p. 1148) upon the action of extracts of various ductless glands upon the bone growth of rachitic infants; the organs employed (the extracts, subcutaneously) being the anterior lobe of the hypophysis, the parathyroid bodies, and the thymus.

Sheep thyroid extract established a balance between calcium and phosphorus, both elements being retained; but, this improvement disappeared after cessation of the injections.

Calf thymus extract did not influence the retention of the two elements named.

Heifer hypophysis extract was followed by diminished retention of calcium, with no effect upon the phosphorus metabolism.

Deduction: The parathyroid bodies are of importance with regard to calcium metabolism. Time enough had not passed to judge of any possible clinical value of such medication.

In the discussion following the address, Oswald Meyer said he had cured a child of spasmophilia by means of parathyreoidin. Also the substance had given good clinical results in severe rickets; it also had influenced calcium elimination beneficially. However, it was pointed out that Weichselbaum had encountered hypertrophy of the parathyroid bodies in a rachitic child, so that caution was indicated in administering these glands. As to these epithelial bodies, the discussion brought out, nothing definite is as yet known about the eventual outcome from transplantation from other sources, animal or human.

SCOLIOSIS, AND DISEASED HYFOPHYSIS

The same idea of relationship between the pituitary gland and bone growth set forth in the foregoing we find expressed by another

clinician, Dr. A. Schantz, of Dresden, in a talk at a meeting of the Dresden Society of Therapeutics and Physiology (*loc. cit.*, p. 1149). The real reason for the defective ossification of the vertebræ still is a problem, this speaker said; however, he had been struck by the frequent association of scoliosis and struma, or, strangely, on the other hand, a seeming complete absence of the thyroid gland in some scoliotic subjects.

The role of the endocrine glands being the topic at the time, the speaker gave voice to the impression gained that there must subsist some causal connection between the two conditions named. Accordingly several years ago he began to feed thyroid gland to persons affected with rachitic curvature of the spine; but, the results were, as he puts it, curious. Some of the patients were favorably influenced; others, though, proved extremely sensitive to even minute amounts, quickly exhibiting thyreotoxic phenomena, so that he abandoned the idea.

Then, some months ago, the speaker's attention was directed to reports demonstrating how disturbances of the pituitary gland affect skeletal development. Immediately Schantz began to administer hypophysial extract in his cases of scoliosis and related conditions, and he feels assured that a large proportion of the subjects [Number not stated.—ED.] is being favorably influenced. Thus far no untoward effects have been observed. He feels justified in recommending this therapy for trial in all cases of what he has termed insuffientia vertebræ, a condition characterized by pain, without any specific *disease* being ascertainable.

GOITER AND DRINKING WATER

Apropos of the subject of goiter, at the same meeting above referred to, Doctor Lindner, of Dresden, touched upon the theory of the water-born nature of this disease of the thyroid gland. He joins the growing number of observers—Dietle, Hirschfeld, Kutschera, for instance—who doubt or even deny that minerals in drinking-water have to do with its causation, believing it, rather, to be conveyed by some virus. He pointed out particularly how in large cities having an excellent water supply, preeminently Berlin and Dresden, the malady is prevalent and spreading (particularly so in their own Dresden); while even as a student in Berlin, his attention had been attracted by the large number of goitrous persons in that city.

Another member, L. Meyer, following Lindner, stated that goiter occurred quite frequently also in Wuertemberg, his home; adding the interesting fact that the number of goitrous dogs there was rapidly increasing, and he was wondering why this phenomenon was not accorded more attention. In addition, he also reported having completely cured one patient of a severe exophthalmic goiter by means of milk from a thyroidectomized goat.

Specifically, the first series of results occurred in a house in which every one of the 5 members of the family was free from any struma. Then, for the sake of comparison, another house was selected, in which the children were distinctly goitrous. But, mark, all the members of this family were using only the Jura-water (nonstrumogenous, so called), and the experimental rats (imported) received the same. After young ones were born, and these had become old enough, the children were allowed to play with them. (All rats were kept in cages, of course.) After the lapse of seven and one-half months, all but one of the 5 imported rats were goitrous, and, of the 4 born there, 3 were affected. This would seem to exclude the new (Jura) water at this locality.

HYPERACIDITY AND HYPERTHYREOIDISM

In consequence of the study of a series of cases in which gastric disturbances and functional alteration of the thyroid gland were associated, G. Marañon, of Madrid, has become convinced (*Rev. d. Med.*, Mar., 1914) that at least one group of disturbances of the stomach is connected with faulty action of one or other of the endocrine, or ductless, glands.

Thus, Marañon finds that gastric hyperacidity is so frequently a concomitant of enlarged thyroid gland that it constitutes only one more indication for energetic interference. Thyreoidectomy here is the more promising; however, medicinally, atropine—or one of its congeners—by virtue of its vagoparalyzant action, often will yield excellent results.

Consequently, whenever one is dealing with excessive secretion or acidity of the stomach, palpably of a nervous character and unamenable to treatment, it is advisable to inquire as to the possible presence of vagotonia, besides enlargement of the thyroid gland, which happily may solve the question of etiology and proper treatment.

Miscellaneous Articles

One Day Out of a Doctor's Life: The Battle For Life

DECEMBER 5. Afternoon. The first snow-fall of the season. It began about two hours ago, a soft, feathery downfall, shutting out the distant shore-line, hiding Warren's Island behind a white pall, covering the tall old pines until they stand spires of driven whiteness. The streets are deserted, not a sound breaks the stillness save the crackle of the wood fire in the little stove just behind me and the musical ticking of my neighbor's clock next door.

As I gaze out of the window, I wonder how some of my college mates now enjoying lucrative city practices would like to exchange places with me. I should not care for the swap, myself. I would not exchange my sleepy little mountain village perched above the lake for their grind and rattle and roar of passing trolley cars and hurrying traffic. I would not trade my little two-room office with its meager furnishing and scanty store of books for their palatial suites equipped with all that heart can desire. I presume that good God created each man for his place in life, and I should be very, very lonely in a large city away from the old lake and the lofty pines, just as they, perhaps, would pine for the smell of coal smoke and the glare of electric lights. Then, too, how would they minister to the call of suffering if such ministration called for a trip such as I shall have to tell you about?

Just two weeks ago today, a chill north-east wind was sweeping down the broad expanse of lake, chopping the lead-colored water into short nasty waves, each wave tipped with foam. Already darkness had begun to settle over the water when a messenger came. The mail steamer had brought him, but there was no returning mail steamer to fetch us both to the bed of suffering seven miles across the disturbed lake.

Duty here in the West knows no law of convenience. If there is no way, you must find a way. In ten minutes I had run the "Papoose" out of her moorings and we were scudding across the darkening water in the teeth of the gale. The "Papoose" is a staunch little craft, what though she is made of thin boards and canvass. Away off on the further shore a single light beamed, and for that we steered, the little boat bobbing like a cork on the waves. A buggy awaited our coming, and then three miles through the darkness back from the lake shore. Three miles through the dense pines and firs, so dense that not a glimpse of sky shone through their dark green foliage. The call, then back to the lake shore and the waiting "Papoose."

Dark. So dark that the white hull of the little boat was a mere smudge on the black, black water. Off on the shore from whence I had come glimmered a few feeble lights, the lights of the little village where I have my home. So dense was the blackness that the eye refused to penetrate it ten feet in front of the boat. I cranked the motor, called goodnight to the companion who carried me back to my boat, and started on my home-trip. I had landed in a deep shallow bay, and within five minutes from the time I started on the return I felt the launch strike something on the bottom and grate along the rocks. Then the motor stopped. I pushed the boat off, picked up the distant lights and started once more. The wind by this time was blowing a gale and the waves were tossing the fragile little craft like a toy-boat.

Twenty minutes from shore, and the thought struck me: What if, in running ashore in the darkness, I had stove a hole through the thin boards and canvass? Great heavens! There I was, in the middle of a 7-mile stretch of wild water, with nothing but an oar for a life-preserver.

I tore up the covering to the well and plunged my hand into the bilge. The water splashed up and covered my hand. I found the bottom of the boat and held my hand there, fingers extended, and felt the water creep

slowly up my wrist. The boat was filling. Not rapidly, yet, still, with enough rapidity to swamp the boat before I could reach the shore.

I am not especially a coward; nevertheless, for all that, a thrill of terror ran through me as I realized that my boat was sinking. In emergencies of this kind, a man thinks quickly. I knew it was impossible to find the leak in the darkness, but even if I did, there was nothing wherewith to stop it.

Half-way home lay an island something like half a mile in length. I knew I must be within two or three miles of that island; but, how to find it in the dark was the problem. I knew that the boat probably would hold out until I made the island, if I did not miss it in the dark. There was no other alternative, I simply *must* find that island. With one hand still testing the rising water, I veered the boat to the right with the other. Heavens, how the minutes dragged away! Had I missed the island? I began to despair.

Then another thought. I could still see the faint glimmer of the lights at home. The island lay between me and my destination. If I veered far enough to the right, the island would shut off the lights. I swung still further to the right and soon the lights were shut off. Now if I could hold my course I was sure to make a landing.

By this time the water stood above the floor and shortly would reach the motor. when all would be over. I stood up and threw off my heavy Mackinaw jacket, removed my shoes and prepared to swim for it. Soon rising water reached the motor and it died with a gurgling sound. The impetus of the boat carried it forward for several yards, when I felt the keel grate on the shore. I'm not much on the pray, but I'm afraid I breathed a silent prayer of thanks when I felt the boat run on the beach.

Still, being marooned on an uninhabited island on a cold night and wet to the skin was not the most pleasant experience one could wish for, after all. I waded ashore, pulled the boat up as far as possible and began a prospecting tour. Fortunately I found some matches and equally fortunate I was to locate a pitch-pine log that had been stranded there by the high water. In a short time I had a fire going. With a roaring fire and a pipe, I could manage until morning.

All night the wind howled and the waves tore upon the beach, lashing themselves into foam where they struck. Out of pure, unadulterated perversity, the morning delayed coming for hours after it was due; still all things must have an end, and gradually it grew gray in the East, the blackness faded and the dim outlines of the distant shore came creeping through the mist.

The light waxed and it was day. I hauled the "Papoose" up on land as far as I could and sought out the injury. It was a hole just at the water-line, and this I succeeded in making nearly watertight, then I baled out the boat with my hat and cuddled the drowned motor into renewed life. As I rounded the south end of the island, I made out several launches patrolling the lake, looking for a wrecked motor boat.

That's just one of innumberable experiences a country doctor in the far West must go through if he tries to do his duty toward his people.

CHAS. S. MOODY.

Hope, Ida.

FROM THE FIRING-LINE

Several questions come to the surgeons of the receiving hospitals on the front, and even on the firing-line. One of them is this: Shall we give morphine—hypodermically—where there is evidently pain and rapidly approaching shock, or hemorrhage, or a wound that involves the large nerve-trunks? In most instances, the soldier is dazed and shocked, to the extent that he does not feel the acute pain. In others, though, there is agony, not only as reflected in the countenance, but by the mutterings and low exclamations. If the wounds are in the lower extremities, there may be profuse perspiration, profound anemia, and general palsey.

Among the French surgeons, morphine is given in all cases of severe wounds, usually in quarter-grain doses. They are provided with a bottle containing it in solution, together with a hyperdermic needle, so that an injection requires only a few seconds. The results are said to be very satisfactory. Back at the field hospital, after the wounds have been dressed, and the question of transportation is considered, the surgeon's judgment about the necessity of morhpine is exercised.

It is the experience of the most practical men that morphine is the best and most readily available remedy that can be used in the majority of cases. Coffee and soup are the next best means available. These latter are found to be very grateful to the wounded, and sometimes they even have a decided soporific effect. Men who have been chilled in the trenches for a long period and then

wounded seem to display a very big appetite at the receiving hospital, and when this is partially gratified they fall into a sleep.

What becomes of them in the hospitals in the rear is not clear, but evidently they are no worse for the morphine, coffee, and soup treatment. Another fact is very evident to the surgeon, namely, that after the soup-kitchen has made the rounds of the trenches and each one is given hot soup, coffee, and bread, the men are more reliable and accurate in their fighting-abilities. An incident may show this.

The announcement was made by an airman that a large number of German troops were seen at one point getting ready for a charge. This was early in the afternoon. Instantly the soup-kitchen was sent down along the lines, while on an elevation just back of the line several magazine guns were being concealed. Orders were given that the men in the trenches, as soon as the charging columns of the enemy appeared, were to fire vigorously and then fall back to the right and left, and leave it to the magazine-gun men to continue the conflict. This no doubt was carried out.

A furious charge was made at about 8 or 9 o'clock in the evening and evidently the enemy was forced to retire. All we knew about it on the firing-line was the stream of wounded we saw coming in until daylight and even after. The enemy seemed to get the range of where these magazine guns were stationed and soon after daylight began a furious bombardment along that region. This was considered an intimation that another charge would be made very soon and magazine-guns were brought up on different sides. The lines were reestablished, the kitchen supply-wagon went down along the trenches, and the stretcher-bearers, at great peril, picked up all the wounded they could find. It was found that a great many of these were Germans suffering from gunshot wounds from our magazine-guns. As a rule, they rather welcome being taken prisoners and do all they can to get back to the rear, with a kind of grim satisfaction and feeling that their part is over. The number of wounded at this point was very large and motor ambulances came from all directions, so as to clear up the hospital and provide for another tide of men.

All day long the artillery fire at this point was very severe. It was evident there would be another charge to break through the lines at this point in the night. Magazine-guns were mounted here and there, and concealed, at points where the enemy would probably come on. A large number of Red Cross men and ambulances gathered at the receiving hospital; and, sure enough, as expected, by about 10 o'clock or later a furious fire began at this point. This kept up for twenty minutes or longer, then subsided, and an hour later another charge was made. In the meantime, other magazine-guns were hurried to the place. Although the night was dark and rainy, the enemy once more made a furious attempt to break our lines. For nearly an hour this time the roar of the guns was frightful, then they subsided.

Then, finally, the stream of wounded began to come in, and another hospital was established. For eighteen or twenty hours a steady stream of wounded men came pouring in, were treated, then sent back to the rear. This was one of the most serious engagements the results of which I saw. The number who passed through the hospital reached nearly a thousand in two days. Those who went out on the battle-field describe the number of dead as something far beyond anything that ever was seen before. No attempts were made to bury them for several days after. It was evident that the wounded on the other side were equally large, and the attention of the troops was turned to get them off to the rear before making another attack.

Two days later the second hospital was moved several miles north, and probably the same scenes were enacted there, where other charges were made. The enemy determined to break the lines somewhere and to establish new positions on a ridge of hills, several miles to the rear. Of course, all the farm-houses, barns, and sheds in the neighborhood were utilized in every possible way for protection, but, fortunately, the commissary department was able to bring up a great stock of stores, such as blankets, coats, and comfortable things, and thus provided in some measure for the severe, inclement weather. Surgeons and Red Cross dressers had to make the best of every accommodation and hover around the fires in antique stoves or fireplaces to keep warm. Work on the firing-line, while full of constant excitement and deprivations of sleep and rest, soon becomes very dreary, and there is a pressure to be assigned to the rear. This brings up new men; some of them very incompetent and occasionally a man utterly unfit to do any independent work. After a day or two of irritating, exciting work and sharp reprimands from the superiors, he goes to the rear. Most of the physicians are Red Cross men. Occasionally we see a regularly appointed English surgeon, but after a little experience these ask to be sent to the rear.

The superior officers are blamed for bad work on the front, for failure to ligate arteries properly or to adjust broken bones; and, when a patient, after being received several miles in the rear, dies soon after from hemorrhage, or he has a very severe wound, made so by transportation and imperfect care at the front, a note is made of this fact, and the supervising surgeon is supposed to look into the matter and determine who is at fault. This requires constant supervision, and, when a new man is watched for a while and found to be efficient and to exercise reasonable care, he is trusted.

In the receiving hospital, the work is supervised by experienced men, and very few mistakes are made. Occasionally, a fault of judgement occurs in sending back to the hospital men who die on the way. This causes great inconvenience and seems to reflect on the judgment of the superior. In the hurry and confusion at the front there is a great deal of good work done and good judgment exercised concerning the best treatment for the time and place.

An incident showing the humanity of the officers as well as of the surgeon took place in a little village where there was a brewery with two large tanks. A quantity of coal had been piled in the furnace, and the commanding officer, with the counsel of the surgeon, heated the water in these tanks and started a bathing establishment. This was highly appreciated and largely patronized. Men from the trenches and in the near neighborhood were detailed, and they jumped into the tubs, four or five at a time, and took advantage of the first opportunity they had had for a good warm bath. A physician took charge of this, and for a day or more a genuine luxury was afforded the poor fellows. Then came a change of location.

Another incident was that of a sudden call one early morning to move the receiving hospital a mile or more farther north. Fortunately the night before nearly all the transportable cases had been sent away and only those who were likely to die at any time remained. A couple of hours of very intense work with a line of ambulances, and a new hospital was established in a little cluster of houses near the edge of the woods. While the telephone wire was being adjusted, I went back to find a motor to carry the boards to our new station.

A few hundred yards away from where the hospital had been removed, I saw a company of artillerymen mounting one of the largest guns in service and bringing up ammunition and fastening trees around, so as to obscure the location of the guns. It was evident that a new artillery duel was to begin at this point, and of course the field hospital was in great danger.

Within a few hours after the guns began, shots from the enemy would fall in the vicinity and, if the sky cleared away and the airmen could detect the location of the guns, it would be a dangerous place. While watching the mounting of the gun, a feeble, excited-looking man came along and inquired about the location of the trenches. He announced that he was a newspaper man and had come up from the rear and wanted to see the work done in the trenches.

The officer advised him to keep away, saying that the ground sloping down to the trenches was covered by German sharpshooters and no one dared to expose himself in that neighborhood, but, if he would wait until night and then go around with a kitchen-motor, he could see what was going on. The man evidently was not satisfied and declared that he had been on the line before and knew what he wanted. The officer remarked to me, "That fellow will get killed before night." Soon the big guns began to roar, sending a great shot every five or ten minutes. I observed that no one remained around the gun except those who had business. Everybody seemed to go off some little distance. After a couple of hours, return shots began to fall. One of them struck the location where the receiving hospital stood in the morning, tearing up great masses of earth as it exploded. Late in the afternoon, the enemy made a charge at this point, but were repulsed. Among the wounded that were brought back on a stretcher was this same newspaper man. He was practically paralyzed all over and unconscious. Later, when the more acutely wounded were looked after, a careful examination showed that there was no injury whatever on his body, he simply was paralyzed and comatose. The pulse was beating with more or less regularity and the pupils were immensely contracted. The diagnosis of shock was made and the man was put into a motor and sent to the rear. From inquiry it was learned he had been near where a shell had exploded in a very exposed position. This was one of a few cases that are seen of what, for lack of a better name, is termed shock. Something would happen and the motor centers had become paralyzed. What became of him no one knew, but this was an example of reckless exposure which no one with experience would dare to risk.

This was the first newspaper man I had seen. Occasionally some sight-seer will wander about the hospital, but the grewsome sights and chilly reception that is given drives him away. Men who apparently are taking notes and writing are quite willing to keep well in the rear and take the statements of others, rather than try to verify them, themselves. Men in the trenches are alert to shoot at someone on the other side and those of the enemy do the same thing. Sometimes the trenches are surrounded by open fields, and these afford a good apportunity for persons going and coming to get into the danger zone. I saw at one place at least five or six bodies of soldiers and others who had been shot on the open field inside the trenches, toward the rear. They had been allowed to lie there, because of the danger of moving the bodies, and only at night could they be taken away. As they were dead they attracted little attention

The cloudy weather seriously affects the fire on the front. Whenever the sun comes out and it becomes clear, the airmen on both sides are seen marking out boundaries and taking observations for the big guns and estimating the force at different points. Fortunately the sky has been cloudy for many weeks, consequently very much less accuracy has followed the artillery fires and the charges to break up the lines at different points. Evidently both the English and the French are bringing into service much larger guns and attaining a degree of accuracy in their firing, as shown by the cessation of the Germans' guns every now and then.

Considering the magnitude of the battle-field and the furious charges on both sides, it is the opinion of those best able to judge that the fatalities are very much less than would be expected. It is also evident that the number of persons going through the receiving hospitals, who have contracted fevers, rheumatism and other disorders, is increasing.

"BRITON."

WILL EMETINE CURE PELLAGRA?

During the last eighteen months I have been called upon to treat three cases of pellagra. The first of these victims came under my care at a time when I was using emetine hydrochloride with wonderful success in the treatment of amebic dysentery. Inasmuch as the intestinal symptons were of a somewhat similar character, I decided to give emetine a trial in this instance; and since then I have given it in two other cases of pellagra.

Following the emetine treatment, the symptoms in all three abated, the skin cleared up and the condition continued to improve, until now no distinguishing signs of the disease remain except a slight scaling where the skin had peeled off, especially where it was of two or three years' standing. In every one of them, the intense nervousness would subside within less than ten days after starting with the emetine. While I do not consider these patients entirely well, the improvement is very decided.

I would very much like to learn whether any other reader of CLINICAL MEDICINE has tried emetine in pellagra, and, if so, with what success.

Grannis, Ark. A. D. HILTON.

[One other physician has written me that he intended to give emetine a trial in some of his pellagra patients. I think this was our friend Dr. A. L. Nason, of Maben, Mississippi. I wish to inquire whether any other reader of our journal has tried the remedy in such cases. If he has, we hope that he will report promptly.—ED.]

THAT FINE MOLASSES: WRITE DOCTOR NASON

Dr. A. L. Nason, of Maben, Mississippi, writes us that he has been flooded with inquiries concerning the molasses referred to in our January issue. That's fine!

For your own sake, we want to repeat the suggestion that any doctor who wants to get some real, genuine cane-syrup of the delicious molasses kind, can do no better than to write to Doctor Nason himself. He will fill your order, and we can assure you that the price will be right.

MAGNESIA IN OXALIC-ACID AND OPIUM POISONING

On November 8 last, I was called to attend a woman, 28 years old, who, in a fit of despondency, had swallowed 1 ounce of tincture of opium and 3 ounces of oxalic acid. However, immediately after taking the draught, she regretted her action and told what she had done. Reaching the bedside within five minutes after being notified, I lost not a moment in introducing into the stomach a tube and poured in half a pint of milk of magnesia, which I always keep on hand for emergencies.

While waiting for the magnesia to act upon the acid, I examined the patient more closely and I found her in a semiconscious state, with knees flexed toward the chest, and suffering severe abdominal pain; in fact, there was extreme tenderness over the entire abdomen. Just before I arrived she had had a violent attack of retching and vomiting. The vomitus smelled offensively sour and was somewhat blood-streaked.

After the expiration of four minutes I withdrew the contents of the stomach, which were markedly acid in reaction. So I poured in another half pint of the hydrated magnesia, which, when withdrawn after waiting five minutes, now was distinctly alkaline. I then lavaged once more, this time with equal parts of the milk of magnesia and warm water.

In the meantime, the patient had regained a fair degree of consciousness. She had a small but readily perceptible pulse of 62, with a very slow apex beat. Her temperature was normal. She was slightly cyanosed, complained of severe headache, and later became somewhat dyspneic; the latter symptom causing considerable distress and much fear and apprehension that, after all, our efforts might prove futile. However, this dyspnea passed away after a short interval, and with it all apprehension.

I continued the treatment with the milk of magnesia, giving two tablespoonfuls every half hour for four doses, then every two hours. I elevated the foot of the bed, which was warmed with hot-water bottles, and gave a hyperdermic injection of ether. I also gave a high enema of the hydrate of magnesia, and encouraged the free use of water, at body-temperature, by Murphy's drop-method. The patient had frequent recurrences of attacks of vomiting; in fact, the gastrointestinal irritation was most severe during her entire ordeal.

On the following day, November 9, I found the patient fairly well, with a pulse of 70, and temperature at 98.2° F, and no more cyanosis. She had a swollen, edematous tongue, curiously streaked with white. She still complained of abdominal pain, but she had good free bowel movements, owing, most probably, to the magnesia. I continued the same treatment. On November 10, the pulse and temperature were normal, but there still remained perceptible tenderness over the abdomen and some slight pain in the lower extremities. By November 12, the patient was able to sit up, but was still quite weak. I left her on a liquid diet, and continued the magnesia—a tablespoonful every four hours for the three days following. On November 15, I found her entirely recovered from her experience and heartily glad and effusively thankful that she would be permitted to try and regain some measure of health and strength, and the ebullient spirits that should be a part of a young woman's rightful heritance.

Because treatment had begun before much absorption had taken place and there had been such free emptying of the stomach, I deemed it unnecessary to attempt counteracting the opium; indeed, throughout the course of the treatment, there did not seem to be any symptoms distinctly referable to that narcotic.

This experience is very instructive and significant, for several reasons. First, remembering that the therapeutic dose of oxalic acid is from 1-2 to 1 grain and that it is soluble in three parts of water, manifestly this woman must have taken about 180 times the maximum therapeutic dose.

Furthermore, we are warned that, even though vomiting be encouraged and the stomach-tube be used immediately, unless the antidote is at hand, death almost invariably follows oxalic poisoning. And it must not be forgotten that the *soluble* salts of oxalic acid (as the potassium and the ammonium oxalate) are quite as poisonous as is oxalic acid itself.

The antidotal indications call for the alkaline earths, either lime or magnesia, as they unite with the oxalic acid, to form the insoluble, inert compounds, calcium oxalate and magnesium oxalate, respectively. I was led to choose the hydrated magnesia, as it is readily administered and has a much higher neutralizing power than limewater — the logical method of administering lime.

While this was a most exciting experience, I should have no fear of a disastrous termination in these cases if two favorable factors were presented: first, if I were called in time; second, if the antidote, milk of magnesia, were immediately available.

JULIUS CHAS. ROTTER.

St. Louis, Mo.

[May we emphasize the point made by Doctor Rotter—a point often overlooked—that oxalic acid is *the one* caustic fluid in which great care must be exercised in selecting the antidotal alkali. Potash and soda, either carbonate or hydrate, must not be used, since they make poisonous combinations. The proper base is either calcium or magnesium. Use the one you can get quickest—magnesia, carbonate of magnesia, chalk, whiting, powdered lime-stone or marble,

or quicklime much diluted; besides those named by the doctor. It's a good thing to have something handy.—ED.]

MORE POETRY BY THE FAMILY

Not infrequently some of the readers of CLINICAL MEDICINE feel the poetic urge throbbing so strongly in their "innards" that they just have to yield to the impulse, and write. Result: A crop of verse. This month we print several contributions from members of the family—good stuff, too, we call it. If others feel inspired, we shall be glad to have them submit samples of their work.

THE DOCTOR

By HARRIETT A. BLACKMER

No higher, holier gift than thine,
To mortal frail, is given,
To heal the ills of fallen man,
A gift of highest heaven.

And He who taught the healer's art,
When footsore, lone, and weary,
Shall guide thy hand, direct thy heart,
In byways dark and dreary.

And shouldst thy gift by sin be sought,
To desecrate God's work so fair,
May lustrous gold to thee be naught,
God keep thee from the tempter's snare.

Newport Beach, Cal.

THE SKULL

By JAMES A. DEMOSS, M. D.

Here, here is where the human soul indwells,
The home of manhood and the place of thought;
Reason constructs her themes, and mem'ry tells
Visions the subtle inner mind hath wrought.

This is the dome of that vast temple grand,
The house God builded in His image true;
Who Wisdom caused persistently to stand,
Safeguarding portals wrong could enter through.

Concealed within this spacious vault are powers
Of mind and soul; the chosen dwelling-place
Of love—that strength which character endowers;
The habitation of all mental grace.

Here, too, the Builder constantly abides,
Who planned and wrought, constructed and designed
The Palace Beautiful. No house besides
So worthy is, to God to be assigned.

Thought's home, indeed! So godly is the sway
And reach of human thought this mould contains,
High heaven descends to meet its upward way,
And men celestial glories here attain.

Five opening gates swing outward and within,
Through which impressions find their way to thought;
Through them the harmonies of spheres rush in,
And man beholds the things that God has wrought.

Thought solves our mysteries, and finds things out
Through evidences which the senses bring;
And man becomes a god, and conquers doubt,
And turns him to his Father, worshipping.

Let us despise not, then, this house of clay;
Divinely built, infused with living light;
But love it more while in its walls we stay.
Abiding here, full glory fills our sight.

Thayer, Kan.,

WORMS

By E. C. LAUGHLIN, M. D.

"O doctor!" thus the mother cries,
And there is terror in her eyes,
"We hope you haven't come too late,
The baby's in a dreadful state.
His eyes are bright, he cries at night,
His little clothes are getting tight
And when he wakes he kicks and squirms—
I fear the little dear's got worms!"

"And, doctor," iterates Aunt Sue,
A maiden lady, tried and true,
" 'T is this that most aroused my fears:
He's too precocious for his years.
With such a brain I fear 't is vain
His strength and vigor to maintain;
This state my point of view confirms—
I'm sure the little dear's got worms!"

"Yes, doctor," Grandmamma avers,
And who can doubt these signs of hers?
"Around his mouth's a line of white,
He grits his little teeth at night,
He works his toes, he picks his nose,
And when he sleeps his eyes don't close.
Don't talk to me of silly germs—
I know the little dear's got worms!"

Paris, Ill.

ICHTHYOL IN TARSALGIA AND META-TARSALGIA

Recently in one of your journals, of which I was and am an interested reader, I noted your appeal to the "new blood" as well as your emphasis on the word "write." So here goes.

I believe the following case will interest and possibly prove of benefit to some of my colleagues who perchance happen upon similar cases:

Patient, a woman, 32 years of age and well nourished, with good family history, but who has had the usual diseases of childhood; also, more recently, two attacks of tonsillitis, the last of these about a year ago, since when the tonsils have been normal. She has three

children, all perfectly healthy. The births proceeded normally. The only thing in her previous history is, that nine years ago she stepped into a hole and sprained an ankle, so that she was unable to walk for several weeks; however, subsequently she had no distressing symptom, except that occasionally, on very

Illustrating characteristic arch predisposing to metatarsalgia, and outline of support

cold mornings, the ankle will be a bit painful, but this soon disappears after moving about. Three years ago she again turned the ankle, but this time was inconvenienced for but a day. Now for the present.

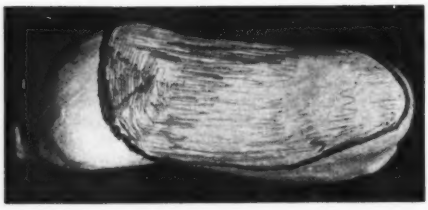
One day the lady, upon arising, again felt that slight pain in the region just below the extermal malleolus, but paid no attention to it,, until by nightfall, when it became quite disagreeeble. This was on Friday. Saturday the pain was quite severe. Sunday she was unable to walk or bear her weight on the foot.

She had not wrenched her foot and denied all knowledge of any additional injury that could bear any relation to the present condition. Examination showed a condition in every way indicative (although in reality simulative) of a sprained ankle or an infection. There was redness, swelling, feverish state, painfulness and tenderness of the ankle-joint, also of the dorsum of the foot. Motion was limited, particurlarly as to dorsal flection. There was decided puffiness just to the rear and below the external malleolus, this being compressible and very painful upon deep pressure. Pressure on the synovial membranes of the tendons in the anterior annular ligament caused excruciating pain.

Further examination revealed a condition that I have found quite frequently, of late years, particularly among the wealthier class of patients. This is a condition which, I am confident, is too often overlooked, if at all pathognomized by many of us, but the recognition of which many a time would elucidate the condition and save us poor erring mortals at least the necessity of considerable unnecessary worry. I specifically refer to the contraction of the plantar fascia, which gives rise to pes cavus (which may, to a certain degree, be inherited), cramped toes and callous skin on the anterior plantar arch, resulting for the most part (together with the inherited tendency) from tight, pointed shoes with ridiculously high heels. In my case, heavy weight, long standing, nervous exhaustion, worry, and the previous ankle injury precipitated the condition described, and gave rise to tarsalgia or metatarsalgia, a condition very painful, sudden in onset, and often misleading as to its true nature.

Now for my treatment, and the good services of ichthyol. I used a 25 percent solution of this valuable drug in glycerin, painting it over the entire ankle and foot very thickly and then covering the part with absorbent cotton and bandaging in the usual manner. In one hour, approximately, the neuralgic pain, as it is generally called, eased up, and the patient was made comfortable; which, after all, is what sick people want of us. Of course, the patient was told to keep the foot in a horizontal position. The following day the pain had entirely disappeared, with swelling greatly reduced and tenderness materially lessened. Another application was made in like manner, and on the third day all the distressing symptons had disappeared.

Now a plaster-of-paris impression of the foot was made and from this a proper foot plate modeled. I prefer to have it made of German-silver and have it extend well forward, so as to raise the anterior arch as well



Showing how foot-plate is modeled to fit the plaster-cast impression

as to equalize the pressure on the weight-bearing surface of the foot. This measure readily relieves, as well as prevents, recurrence of the tarsalgia, much to the comfort of the patient and the satisfaction of the physician.

A word of warning here may not be amiss, namely: one should be on the alert for a similar manifestation in the other foot, as a pro-

phylactic measure, and when a contracted foot is exhibited or the tendency observed, a plate, as above, should be prescribed for this foot, too. Besides, this has the advantage of collecting a fee for two casts, instead of one, in addition to having a grateful patient.

W. H. C. HATTEROTH.

San Francisco, Calif.

ARE YOU INTERESTED IN CHICKENS?

In the January number of CLINICAL MEDICINE we made the suggestion that any reader who wanted to exchange some commodity of his own for something someone else had, would be given an opportunity to do so through these pages.

Dr. R. A. Dehmel of South Germantown, Wisconsin, offers chickens, which as he says "are prize winners wherever shown." He has a few R. Comb Rhode Island Red Cockerels, at $2.00 each; pullets to match, at $1.00 to $1.50 each; S. Comb White Leghorns, at $1.50 to $2.00 each; pullets to match, $1.00 to $1.50 each; eggs for hatching from best pen (either kind), at $1.25 per dozen; eggs for hatching from second pen (either kind), at $1.00 per dozen.

The doctor will exchange a pen of his best S. C. White Leghorns for a pen of Anconas or White Wyandottes. He also has choice comb honey in season—basswood and white clover.

If you are interested, write to Doctor Dehmel. What can you "swap"?

ENLARGEMENT OF THYMUS GLAND

The thymus gland is a temporary organ, believed to be a true lymph-gland, but its nature and function are as yet very little understood. It attains its full size at the end of the second year, then gradually atrophies and disappears at the end of about the thirteenth year; in some cases, however, its shrunken lobules or masses remain even later in life. Situated in the anterior superior mediastinum, the thymus rests upon the pericardium, the arch of the aorta, and in the neck it lies directly on the trachea. Each lateral lobe, or entire gland, is enclosed in a capsule. The primary lobules vary in size from that of a pin's head to a hazel-nut. At birth, it weighs from 3 to 5 Grams. The blood-vessels supplying the gland are derived from the superior and inferior thyroid and the internal mammary arteries; the neural supply from the sympathetic, pneumogastric, phrenic, and possibly a few branches from the hypoglossol nerves.

The thymus is subject to disease. Syphilis of the gland is commonly characterized by the appearance of gummata. Hyperemia, inflammation, and abcesses are not common. Tumors most commonly found are lymphomata and lymphatic sarcomata; epitheliomata are very rare.

The sudden death of apparently healthy infants (sometimes found dead in bed) has been due, in many instances, to a sudden attack of dyspnea (followed by cyanosis) and consequent death. When this has happened, the thymus was found greatly enlarged, and death was thought to have been directly brought

Fig. 1. Anterior view of thymus gland. Notice its dense capsule and one of the carotid arteries

about by pressure upon the pneumogastric nerve, trachea or, in some instances, on the great vessels. Under these circumstances, autopsy revealed the thymus immensely enlarged, often weighing over one ounce and crowding all the other structures in the anterior middle mediastinum. In 24 cases of acromegaly in which it was examined, the thymus was hypertrophied in 7 instances (Furnival).

Just what is the function of the thymus gland in infancy is not known. Bumman found in it minute quantities of a substance containing iodine. A number of German and English authors have thought that its internal secretion has an influence in combating infectious diseases, while others suggest

a possible role in the development of the infant's organs.

In the following, I wish to relate a personal observation in a case involving enlarged thymus in an infant upon which, after its death, I was so fortunate as to perform necropsy.

The mother of the child in question (American) was 35 years of age; had had the ordinary diseases of childhood; no luetic infection. She had two children. On June 15, 1913, I delivered her of a 9-pound healthy girl child; labor was short and easy; no instruments were used. The puerperal period was short and without any complications.

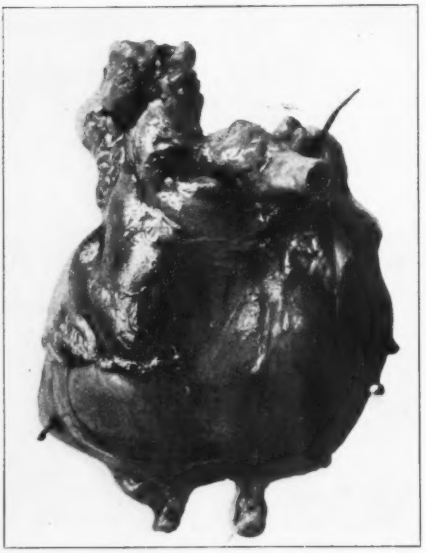


Fig. 2. Posterior view of thymus gland. Notice the arch of aorta and its relation to the gland.

The mother nursed the baby for two months, when her milk failed, after which she fed the baby modified cow's milk. The baby gained in weight and appeared normal and healthy in every respect, except that on February 14, 1914, it had an attack of slight intestinal disorder, but from which it recovered completely after a short treatment.

March 28, 1914, I received a telephone hurry-call, that the baby was dying. I got there in a short time, but the child was dead ten minutes before my arrival. The mother told me that the child was in its usual condition and playing with the other children, when suddenly it had a slight coughing spell, became cyanotic and died in a few minutes. Examination of the dead body revealed a large area of dulness upon percussing over the sternal region, and the peculiar circumstances suggested enlargement of the thymus gland as the cause of death.

Finding at the necropsy: Body well nourished; weight about 18 pounds; rigor mortis well developed. The opened thoracic cavity showed the thymus gland in the field of operation. Being carefully dissected from its bed, which extended high up to the thyroid gland, it was found very much enlarged and markedly congested, and weighing more than one ounce. It was reddish in color. It felt soft, and no hard nodules could be discovered in the mass, which was enclosed in a dense capsule. Section revealed nothing abnormal, except the presence of a large amount of blood. There were no cysts. The blood-vessels and glandular tissue were well developed; the lungs apparently were normal in position and lobulation; no free fluid in the pleural cavities. The pericardial cavity contained a straw-colored fluid; the heart was normal both in condition and location. There were no other enlarged mediastinal lymph-glands and no diaphramatic hernia.

This unique case has suggested to me the following questions:

1. Could we have helped this baby if the dianosis had been made before death ensued?
2. Is there any drug or agency that might be of value?
3. Could we operate upon the gland, and when and how?
4. What is the function of the thymus gland, according to latest studies?
5. What is the internal secretion and what are its chemical constituents?

In this connection I desire to thank Dr. R. R. Whitten, in whose service this case occurred, for assisting at the necropsy.

JOSEPH JOHNS.

Ionia, Mich.

A TESTIMONIAL TO CLINICAL MEDICINE

Your giant ampules of autogenous mental pabulum, if taken in twelve monthly doses by the think route, keep the bats out of one's belfrey, the cobwebs out of one's spinach, and the hypertrophy out of the knees of one's trousers and all at the small cost of two dollars a year. J. O. R.

Washington, D. C.

[Right you are! And the medicament is easily administered and pleasant to the palate,

leaving no disagreeable taste in the mouth or other deleterious after-effects. Take no substitute. Have you renewed your "prescription"? Wouldn't you like to prescribe (and pay for) twelve similar "ampules" for a friend? —ED.]

DYSENTERY CURED IN TWO INJECTIONS

You may be interested to know that a dentist friend of mine, for many years a sufferer from dysentery, has entirely recovered, as a result of taking two hypodermics of emetine at my suggestion.

He has had treatment for years for this trouble, from some of the best men in this part of the country, and hitherto without results except such transient relief as follows the heavy use of astringents. It was evident, however, that Mr. Entameba Bug was the gentleman who was causing his trouble, and to say that he is tickled at having banished him from the premises, is but putting it mildly.

EDWIN F. BOWERS.

New York City.

THERAPEUTIC COMMENTS BY PROFESSOR ELLINGWOOD

I was very much interested in an account in your February issue of the delivery of a mother, on three seperate occasions, of a child in transverse presentation. In December, I published an article in your journal advising the use of measures during the entire course of pregnancy, to preserve normal conditions. Such a case as this one referred to is precisely one in which the measures there advised will be found of inestimable value. By some means, that we probably never shall be able to explain, normal conditions are so preserved that malpositions are seldom found.

There is another factor in this particular case. The Doctor says nothing about the weight of the first two children; but the third weighed ten pounds. The course advised in the article referred to, when carefully understood and followed, is capable of preventing a child assuming large proportions before birth, and of preventing the growth of deficient children. All that is necessary is, that the attending physician be enabled to determine whether the mother will be likely to give birth to a large child or a small one. Then he must understand the scientific adjustment to the mother of essential-food principles, that these be properly adapted to the child.

This course sounds a good deal more difficult than it will be found to be. I believe the day is here when a physician is adjudged culpable for neglecting a patient as to occurrence of three transverse presentations. The blame, however, is not to be thrown upon the individual physician. It is to be thrown on the methods of teaching in the colleges; encouraging surgical measures in obstetric cases, and in every way disparaging the use of medicines.

Doctor Bailey has made a valuable suggestion to your readers for the use of lobelia. This wonderful remedy was taboo for three-fourths of a century, because of its first patronage and its presumed poisonous properties. Now, when we come to use it hypodermically, we find that, like ipecac, the manner of administration covers a field so broad, so sufficient, so comprehensive, and in such an exceedingly satisfactory manner that we are doing our patients and ourselves a great injustice if we do not at once find out all about it.

We have learned that emetine hydrochloride, given hypodermically, is a most effective remedy in otherwise uncontrollable hemorrhage, and that, further, this alkaloid is proving to be almost as specific for amebic dysentery as quinine is for malaria. What would you think of a remedy that will cover six or eight distinct conditions as effectively as emetine controls dysentery? This is what we are learning about lobelia when administered in a form specially prepared for that purpose. True, the same results are obtained from its fluid preparation, but accompanied, usually, by emesis.

On page 162 of the February issue of your journal is an interesting article on first aid to those needing artificial respiration. These are cases in which a full hypodermic dose of lobelia, repeated in half an hour or an hour, is proving to be wonderfully efficient as auxiliary to all other measures, and it is surprising in how many instances it is sufficient alone and unsupported. I would suggest, however, that a lowered temperature should never be overlooked. In asphyxia, the persistent application of heat or the pouring at some height of hot water from a pitcher gently over the spine or all over the surface of the skin should always be resorted to, especially if a little time is required to secure some of the measures upon which further reliance can be placed.

I believe that lobeline sulphate has an immense field in the future. Although Doctor Abbott has been offering it to his patrons for

some years, they do not seem to have taken to it with avidity. I recommend that the readers of THE CLINIC at once familiarize themselves with the action of this masterful drug.

Doctor Keller's report on the epidemic of acute icterus impels me to say that here symptoms are presented that will be met specifically by the remedies mentioned in my article, in your January issue, on the action of the five good liver-remedies.

However, the acute symptoms demand another remedy or two. The temperature will subside satisfactorily under the use of aconite (or aconitine) in small and frequent doses. The local soreness, tenderness, acute tiny sharp cutting pains through the liver. which generally are present, and restricted abdominal tenderness, will specifically be met with bryonia; 20 drops of this remedy in a 4-ounce mixture, a teaspoonful to be given every hour, will cause these symtoms to abate. So satisfactorily does this remedy act, in conjunction with chionanthus, for the icterus, or with leptandra, that the prescriber will be convinced of the specific action of these drugs.

It is not necessary to give active hepatic remedies. I think better results will be seen from the administration of a saline laxative with the above, without the calomel, as these two remedies named are slightly laxative in themselves; and a laxative effect only is needed. Active physics must be avoided. From this simple course, with persistent heat externally, and perhaps, for its effect on the toxins, 8 or ten drops of echinacea every two or three hours, a satisfactory termination of this condition will be secured in a very short time.

Doctor Cosgrove, in his article, speaks of the action of gelseminine as an anodyne. It should be more generally known that this drug (or gelsemium), given in sufficient dosage, either hypodermically or by the mouth, will control a great many pains that are supposed to depend upon local causes only. Toothaches occur with persistent facility when the patient's stomach is very sour, the nerve being especially susceptible to irritation. If the patient is given from 1 to 5 drops of gelsemium every hour, with a single dose of bicarbonate of sodium, of 20 or 30 grains, or a good thorough dose of Abbott's saline laxative, the pain will disappear as if the result of a hypodermic injection of morphine.

Furthermore, gelsemium directly antidotes the irritating influence of every form of toxemia that induces rheumatism, acting in perfect harmony with macrotys for this result. If the readers of this journal will get into the habit of prescribing macrotine and gelseminine together, in the treatment of every form of muscular rheumatism, especially myalgia, lumbago, torticollis, and tic, they will be surprised at the facilitity with which these remedies will permanently remove those conditions. They are of value, also, in articular rheumatism where the inflammatory action involves the contiguous muscular structures. I believe that I could write a small book on the beneficial action of these two remedies alone in this class of disorders.

FINLEY ELLINGWOOD.

Chicago, Ill.

[The foregoing comments of Doctor Ellingwood on the February number of CLINICAL MEDICINE are full of meat. There are few men in this country—or any other country—who know the vegetable remedies as does Doctor Ellingwood; and when he talks we all sit at his feet. We are planning for more of his articles in early issues of this journal—the Doctor has promised them—and we hope he will also help us by commenting and criticizing here and there, as the spirit moves him.

By the way—have you seen the January number of *Ellingwood's Therapeutist?* It's a remarkable one, devoted entirely to a discussion of *lobelia*. This is a great remedy, and Ellingwood is its prophet! If you want to know all about this substance—and of course you do—send stamps to Professor Ellingwood and ask him to send you a copy.

And, speaking of lobelia, don't forget that its action is fully represented by lobeline sulphate, an alkaloid the possibilities of which are dimly understood as yet. Some day, we believe, it will replace the galenic preparation, just as emetine is replacing ipecac. In a personal letter, Doctor Ellingwood says, "I believe that your readers ought all to patronize lobeline sulphate." Send him stamps for a copy of his "lobelia number," and you will understand the "why" of his enthusiasm. —ED.]

HOW I SUCCEED IN PNEUMONIA.

I was very much shocked to read in the St. Louis papers that my old professor of the practice of medicine in the Beaumont Medical College (now the St. Louis University) was to be buried, and that he had died from pneumonia.

For many years I have not lost a case—when I got it early and had full control. I

clean out the bowels thoroughly with calomel, gr. 1-6; podophyllin, gr. 1-6; and bilein. I give the defervescent compound every thirty minutes for ten doses, then every hour for ten, and then every two hours; nuclein solution tablets, 5 grains, every four hours; creosote carbonate, 5 minims, every four hours, for its action on the bowels and lungs, and to start the internal secretions; and always an enema of normal salt solution every day. This is important. In desperate cases two should be given.

Where I cannot give the enema, I give sodium chloride, grs. 10; bicarbonate of potash, grs. 5; water, 8 ounces; lemon juice, 2 spoonfuls. This makes a nice drink and replaces the chlorides in the blood.

For the cough and to aid expectoration I prescribe ammonium chloride, grs. 3; ammonium benzoate, grs. 2. These are put into capsules and 1 given every three hours, with a small tablet of emetine. Occasionally guaicol carbonate and sodium sulphocarbolate answer the indications nicely.

If you see your patients often, and meet all indications, they will get well promptly, although the friends of the patient will almost doubt that they had pneumonia. It is a pleasure to treat them with the alkaloids.

I have found that the tonsillitis tablet (containing acontine, bryonin, atropine, and mercuric iodide) with one 5-grain tablet of nuclein, acts like a specific in tonsillitis. I use this or one of my own (which follows) and never fail: Ammonium chloride, grs. 3; phytolaccoid, gr. 1-2; specific tincture apis, min. 1; nuclein, grs. 5.—one such dose every hour or two.

IRA A. MARSHALL,

Ironton, Missouri.

IRRITATION FROM EMETINE

In a personal letter, Dr. Edwin F. Bowers, of New York, has made the suggestion that emetine hydrochloride, when used hypodermatically in the treatment of pyorrhea, dysentery or other disease, should be injected first into one arm, then into the other, alternately. Occasionally, he says, this drug when used subcutaneously causes some slight pain and swelling, together with a disagreeable itching at the site of introduction. The discomfort can be avoided, to a large extent at least, by injecting it alternately into the two arms as just suggested.

In this connection be sure to read the abstract printed on page 252 of the "What Others Are Doing" department. The writers referred to have noted the occasional swelling at the point of injection of emetine hydrochloride and have observed that this is more likely to follow the second, third or later injection than the first one, and therefore he believe it is due to the toxemia induced by the destruction of the amebæ rather than to the direct action of the emetine itself.

Another point about using emetine: It has been brought to our attention that occasionally quite severe reaction follows the introduction of the solution of this alkaloidal salt into the pyorrheal sacs. This is probably due in part to the use of too strong solutions, in part to carrying the needle too deeply into the inflamed tissue surrounding. While this is the technic advised by Smith, we would suggest that in beginning treatment, at least, a blunt-pointed needle be used and that the sac simply be flooded with the solution, no effort being made to penetrate the tissues. We shall be glad to hear from those using the drug with reports on variation of technic. We have no doubt that our method of using emetine will be ultimately much improved.

Reports of brilliant successes with emetine in pyorrhea continue to come in. Some of the cures obtained are almost marvelous.

Do not forget that emetine hydrochloride is just as effective in arresting hemorrhage as it is in curing pyorrhea.

A VACCINE FOR HAY-FEVER

In answer to numerous inquiries from physicians throughout the United States, let me say that the vaccine or extract, used by me in the prevention and cure of hay-fever, is made from the combined pollen of Spanish needle, ragweed and golden-rod. One gram of the mixed pollen is ground in a mortar, with a few grains of pulverized flint, and moistened with carbolized normal-salt solution. Enough of the solution is then added to make 500 Cc. The mixture is placed in a sterile flask, sealed and kept at refrigerator temperature for a week. It is then centrifuged, pipetted, put into ampules, and kept in a dark, cool place, for a year. This product is not active when freshly made.

The pollen must be secured from plants which have been pulled up by the roots, and potted indoors. In making the extract, the greatest care must be exercised to keep it from spoiling. Before being used clinically, it should be thoroughly tested, bacteriologically.

The beginning dose is 0.01 Cc. or less, administered subcutaneously, and gradually, according to the susceptibilities of the pa-

tient, the same as tuberculin. As a preventive, a dose is administered weekly, commencing six weeks or more before the expected attack of hay-fever. During the attack, a dose is given daily or less often, as indicated. It appears that patients who can take 0.5 Cc. of this extract without reacting, are immune to hay-fever. Overdoses produce all the symptoms of acute hay-fever and asthma within a few minutes after their administration.

During the past two years, I have treated with this vaccine or extract about 100 cases of hay-fever and without any failures; but, of course, the treatment is still new and on trial. The cases treated have been selected ones, and all my patients live in this locality. I shall be very glad to have physicians in other parts of the country test out this plan of treatment, and report results.

In all cases which presented any bacterial infection of the respiratory tract, I have employed the various bacterins, in conjunction with the hay-fever vaccine. The past season, I treated two patients with their initial attack of hay-fever. One required two doses, and the other, one dose. Neither recurred during the season.

I am aware that all these pollens have been repeatedly used before in the treatment of hay-fever, and used unsuccessfully, but I think the trouble lay, first, in the way the pollen was collected, and, second, in the method employed in the manufacture of the extract. Anyway, the results obtained with the new preparation, so far, certainly warrant further trial of this treatment in hay-fever, which has heretofore baffled all treatment.

I shall be very glad to answer inquiries from physicians interested in this treatment.

E. J. Burch.

Carthage, Mo.

TREATMENT FOR SCIATICA.

On page 85 of Clinical Medicine for January, appears an article on treating sciatica. Others have preceded it, all very good and instructive.

In the early fall of 1913, and continuing to late spring of 1914, an epidemic (or near epidemic), of so-called sciatica prevailed here, extending west to the mountains and south and west to Denver. At least that was as far as my experience, or any case which came under my care or observation ranged.

With three exceptions all of my patients recovered. One of these, a woman, I was treating when I was suddenly called out of the city. I left this case in charge of a doctor friend, and while I was away several efficient physicians, in and out of the university, had been called in consultation. Upon my return Christian Science was asked for and I quickly agreed. Christian Science was as useless as water—more so. Then chiropractors and osteopaths were employed. Again I was called, reestablished the menstruation and was able to give relief. Now, after massage by a Japanese, this woman is better, but *not* cured.

This failure, on my part or on the part of any medical man, to cure in ten or twelve days, does not seem excusable to me, and my reason for this statement is that I have not failed since, and I have treated or directed the treatment of twenty or thirty cases under my present method.

Does anyone know what causes sciatica? I do not believe anyone does. It is a symptomatic neuralgia of a short portion of one large nerve trunk, its neurons or their dependencies. I do not *know* this to be the case, but I have a very strong reason for my belief, and upon this my treatment is based. It is as follows:

I have not, nor can I find, a case in which sciatica occurred in male or female under puberty. Also, every case which came to my notice gave a history of some alimentary trouble of an important nature some time previous to, or during the attack. My conclusion was that there is absorption of toxins with their origin in the digestive tract. The symptoms would be explained by the presence of a microsporon, finding nutriment between the nerve filaments, their sheaths or the neurilemmas of the main nerve trunks, with rapid colonization, causing pressure and of course the resultant pain. That portion of nerve affected in sciatica, short though it is, seems to be a favorite one for their habitat.

Treatment: First, success of treatment depends on the length of time elapsing between the present attack and the time the treatment is begun. Although a previous attack will delay the apparent cure, it does not prevent it. It was found that those who applied for treatment within one week or not to exceed ten days could be discharged in fourteen days and occasionally one in eight, ten or twelve days, but usually about fourteen days. One case of over a year's standing required six weeks.

Regardless of age, sex or nationality, I administer six 1-4 grain calomel tablets, one-half hour apart, one tablet to a dose, followed in one hour after the last by a large dose of

any saline laxative desired. (Abbott's is very fine, but any one agreeable to the patient's taste may be used.) If in one hour no results are obtained, repeat the saline and be positive that the second dose produces free bowel elimination. Arrange the time to suit the patient's occupation, for he may be compelled to earn a living as long as he can possibly move about.

Each day I give hypodermically 1-6 grain biniodide of mercury, injected into buttocks, or if it cannot be tolerated every day, sodium cacodylate may be tried. Internally I give Lloyd's dioscorea and echinacea, 1 1-2 drop of each to four ounces of simple syrup, or 1 drop doses of apocynum in mixture for psychical effects and also to allay gastrointestinal irritation. Occasionally the biniodide and sodium cacodylate are not well borne by the patient, in which case I use Lloyd's subculoyd lobelia 1-2 Cc. and apocynum (specific tincture) same amount, and inject as nearly in the nerve sheath as possible. Always use a long fine needle, sharp, and inject with as little pain as you can. The largest amount of the lobelia and apocynum I use is 2 Cc. or 15 minims of each.

I allow my patients to eat whatever they have been accustomed to. When they become "weak" from too frequent bowel movements, I omit purgative treatment for one or two days. In two cases, I was compelled to inject in the gastrocnemius popliteal space and the second sacral, slightly to the affected side. Most of the injections were direct into the apex of the buttocks.

Until I adopted this treatment and up to the time of its commencement, I had nothing but failure. I secured relief previously, and that others also had accomplished. My cures, if any, were accidents. Since my adoption of the course which I have outlined, I have little dread of sciatica.

F. E. HUFNAIL.

Minneapolis, Minn.

[In regarding sciatica as an expression of autotoxemia, Dr. Hufnail takes the position which we have expounded for years. His line of treatment has about it the ring of rationality and effectiveness. We might suggest, if he will permit us, that, in view of the acidemia which nearly always underlies this condition, a thorough course of alkaline treatment should be associated with the eliminative measures suggested. The exact purposes of the remedies which he injects into the buttocks we confess we do not understand, but apparently they are of value. Injections of chloroform into the nerve-sheath have been used, with good results; also of alcohol, osmic acid, adrenalin, cocaine and other substances. The objection to this whole line of treatments is that it is generally painful, and the patients are likely to object strenuously. "Baking" the limb in a proper hot-air apparatus gives great relief; or, in lieu of this, applications of hot epsom-salt solution to the limb, or of blisters to the sacrosciatic notch. If the limb can be immobilized, recovery will be most rapid. Who has something more to offer?—ED.]

MENDING A BROKEN NOSE

A recent newspaper article describes a method for treating a broken nose, by taking a strip of bone two inches long and a quarter of an inch wide, from the inner edge of the victim's own shoulder-blade and inserting this into his nose—the bone graft healing in four weeks, with the normal shape of the nose preserved. In this connection, I will briefly describe a method that I once employed with success in a case where a man's nose had been broken by a kick from a horse.

I took the ends of two goose-quills, about one and one-half inch in length, attached threads to the outer ends of the quills, inserted them into the nostrils, then fastened the threads to the sides of the nose with adhesive plaster, which kept the quills in place. The nose then was moulded into shape and retained so by means of a strip of sheet lead bent to form a splint. The result was highly satisfactory; in fact, so much so that the man's friends congratulated him on having a proboscis better-looking than the original one.

GEORGE D. STANTON,

Stonington, Conn.

THE PRICE OF ASPIRIN

In the January number of CLINICAL MEDICINE (page 67), under the title, "Salophen versus Aspirin," reference was made to the price of the latter preparation, and the statement made that is was quoted at $1.00 per ounce.

We have received a letter from the Bayer Company, of New York, informing us that we are in error, inasmuch as aspirin is selling, in 1-ounce cartons, at 58 cents, and no druggist should pay more than that for it.

It is further asserted that since the present war began there has been no advance in the price of the Bayer products, with the exception of aspirin and veronal. The former has been

advanced 15 cents an ounce; the latter, 90 cents an ounce. This increase of price became necessary for the reason that the cost of the raw material employed in the manufacture of these two products in the company's plant in Albany, New York, is higher than it was before the beginning of the war.

We are glad to bring these facts to the attention of our readers.

ABDOMINAL GRIP, WITH METHOD OF TREATMENT

Influenza, or grip, has been a resident of the United States for about a quarter of a century, and there is not a hamlet or a settlement, no matter how remote or inaccessible, which has not been visited by it, at some time or other, during this period. This disease is generally epidemic in character, but at certain times it has become pandemic. There is no disease that exhibits so many peculiar characteristics; and there is none so treacherous in its dealings with the human family.

The writer is now in the midst of an epidemic of grip, and the disease is playing some very unusual pranks here. Being an acute infectious disease of bacterial origin, one would only expect such variations as would grow out of the difference in temperament and constitution of different individuals affected, but influenza does not stop at this point. In the epidemic with which we are now engaged not only are all the symptons of the disease exhibited, but some serious ones that we have never met before with influenza.

About fifty percent of our patients present an acute hepatitis. In these patients, the seat of the disease seems to be in the liver instead of the mucous membrane of the respiratory tract. While these patients all have a congestion of the mucous membrane of the nose, throat, and bronchial tract, yet it is not so severe as in those in which the liver is involved, and it soon clears up when the hepatic function is restored.

The gastric symptoms are very pronounced, especially in children at the beginning. Often vomiting is the first symptom, and it is hard to control. In all patients presenting hepatic complication the temperature runs high and it is not readily reduced. In several patients it has registered 105° F. for several days; and when it was brought down with antipyretics and baths, it would soon rise again when these influences were withdrawn. This pyrexia continues from twelve to fifteen days, according to the severity of the hepatic involvement.

Pain and tenderness over the gastrohepatic region has been very acute. I have seldom seen patients suffer so acutely and continuously as during this epidemic. No position can be found in which they rest well. They are constantly asking to be moved. Then, when the nurse attempts to move them, she is often told to stop, the pain experienced is so great.

Breathing is often painful, and coughing produces intense suffering, so great that pneumonia or pleuro-pneumonia is often suspected.

On palpation the liver is found much enlarged, the region of dulness extending from one to three inches beyond the normal boundary. In one case the hepatic enlargement was so marked that it was easily seen by ocular comparison of the right and left sides. There is marked tenderness on pressure, extending from the hepatic region across to that of the stomach, and in some patients all over the abdomen.

The bowels are always constipated and in the majority of cases have been tympanitic. Jaundice is invariably present, and only varied in profoundness with the severity of the disease.

Many of these cases have been diagnosed in the country as typhoid fever. Many of our patients are delirious, some of them bordering on violence, while others have a low, muttering delirium and pick at the bedclothes. One patient in particular, a man 64 years of age, did not remember anything that transpired during the two weeks of his illness. The temperature continued uninterrupted between normal and 105° F. for eighteen days, and then, after a profuse sweat, dropped to 97° F. It was two weeks before it came up to normal again.

We are glad to say that my patients have all recovered, although some of them have not fully regained their strength. During this siege I have had an opportunity to test many remedies and to formulate a line of treatment that I believe hard to improve. It is to be remembered that, in all forms of this disease, the growth of the bacteria is rapid and therefore the elaboration of their toxins is equally rapid. These toxins poison all the tissues and fluids of the body, impairig cell-activity everywhere, producing irritation and inflammation, and increasing the congestion by this paralyzing effect on the walls of the vessels. This being true, the plan of treatment is plain; we must sustain our patients and aid nature until these toxins are eliminated.

The first step is to clear the intestinal tract, and this must be done thoroughly. The remedy best suited for this is calomel, followed by saline laxative. In my cases of hepatic involvement, calomel, bilein, and podophyllin, were administered in sufficient dosage every third or fourth day, and during the interval the bowels were kept well open with the saline laxative.

The bowel movements are always foul-smelling in these cases and intestinal antiseptics (the sulphocarbolates) should be given "to effect." The writer took special pains to observe that this measure has a controlling influence on the high temperature. Just as soon as the alimentary canal was cleared of all former debris, and the stools rendered odorless, the temperature would drop from one to three degrees, according to the severity of the case. This is easily understood when we remember that the system is already overwhelmed with toxins, and to shut off their absorption from this source can not help but be good.

Aconitine is the remedy *par excellence* at the beginning of an attack, especially in robust patients. It reduces the rapid heart action, controls the circulation by reducing the arterial tension, and helps to eliminate poison by increasing the action of the skin.

Do not rely upon the tincture of aconite. I came very near letting a little patient die through prescribing a worthless tincture, because I had allowed myself to run out of the granules of the active principle. In the beginning of these acute cases the aconitine should be administered every twenty to thirty minues, until effect, then every two or three hours as indicated. If the patient borders on the sthenic type, the defervescent compound can be used to good advantage.

Another line of treatment is very important for this class of cases, and this is to support and reinforce the phagocytic power of the system. The writer has found that nuclein is the best remedy for this purpose. Push it in the beginning, then as required. Calcidin is another remedy of value in these cases. Just how it acts I do not know, but it is a great neutralizer of toxins and poisons. The object in treatment of these serious cases is to make every organ that can eliminate poison do its very best. The kidneys should not be forgotten. The writer uses arbutin and plenty of water for this purpose.

In cases requiring digitalis, squills can be added with good effect.

When the patient suffers with a dry cough and complains of great rawness and soreness in the chest I know of no more effective remedy than the compound tincture of benzoin. This agent not only relieves the soreness, but loosens the bronchial secretions and acts as a mild stimulant generally. In the hepatic cases I secured good results from counter-irritation over the liver, and across the gastric region when pain and tenderness radiated in that direction.

C. W. CANAN,

Orkney Springs, Va.

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[Doctor Canan has undoubtedly been dealing with the gastrointestinal type of influenza. For many years, contributors to periodical medical literature denied the existence of this form of the disease but more careful study proved conclusively that the bacillus of Pfeiffer frequently invaded the abdominal organs and that various gastric, intestinal and hepatic disorders of heretofore obscure origin, which have caused clinicians a great deal of trouble, may be directly due to its presence.

The writer some years ago treated half a dozen patients whose symptoms closely resembled those described by Doctor Canan. At the same time, at least a dozen other individuals in the same neighborhood presented the usual grippal syndrome.

The temperature in the abdominal cases was persistently high, and in three instances pain in the hepatic and epigastric regions was intense from the second to the fifth day. Vomiting was an almost constant feature, and when this symptom was controlled by the administration of chlorodyne, or small doses of morphine and hyoscine, frequent bilious dejections caused extreme discomfort. In more than half the cases the area of hepatic dulness was increased one or two inches and the cecal region was exquisitely tender. The entire tongue was heavily coated with a dark yellow, sticky deposit, assuming towards the base a dark brown or black color. The sides were deeply indented. Widal and diazo tests were negative. The muscular and joint pains usually observed were accentuated and it was difficult for the patients to find comfort in any position.

Naturally these symptoms indicated a toxemia of intestinal origin, and calomel, podophyllin and irisoid were given rather freely (and frequently), followed in every case by a copious saline draught. Quinine salicylate, bryonin, and chionanthoid were administered every three hours and full doses of the sulphocarbolates (with hyoscyamine in pronouncedly diarrheal cases) every four. In a few cases quinine valerate and antipyrin

were substituted for quinine salicylate during the stage of hyperpyrexia. Epsom-salt sponge baths, followed by an alcohol rub, proved particularly grateful, and in practically every instance reduced the temperature one to two degrees for an hour or more. High enemata of decinormal salt solution were given each night.

Cactoid or digitalin, and strychnine arsenate, were used as cardiac conditions indicated and nuclein in massive dosage administered twice daily from the first. The nares, buccal cavity and pharynx were sprayed several times a day with dilute hydrogen peroxide and alkaline antiseptics.

Milk and Vichy (or lime water), clam boullion, albumen water, and barley water were the only nutrient articles allowed for the first three or four days.

Methyl salicylate and guaiacol were inuncted freely over painful areas and hot compresses applied. Naturally, each case presented at some period peculiar features demanding definate medication, but under this basal treatment every patient recovered fully. Convalescence was established as a rule within ten days, but in two cases the retching, diarrhea and hepatic congestion persisted for two full weeks. One of these patients gave a distinct history of a cholecystitis of two years' standing. There has been no sign of disorder in the region of the gall-bladder since.—ED.]

A NEW WAY OF GIVING MORPHINE

I have not noticed that you or any of the many users of H-M-C ever have recommended their administration by introducing the remedy into the nasal fossa. I have used them in this way a number of times, with good results. If you will allow your mind to run back over anatomy, you will recall that the cranial and nasal cavities are separated by only a thin plate of bone, the cribriform plate of the ethmoid, this plate being pierced by a number of openings through which pass filaments of nerves. These nerves are directly connected, through the olfactory bulb, with the brain, and anesthesia of them seems to be carried direct to the brain.

The schneiderian membrane is supplied with an absorbent system, and absorption by it takes place more readily than is generally supposed, so that both the local and systemic effect are obtained.

I crush the tablet to fine powder, take a pinch between the thumb and finger, and, holding it close to the nostril, have the patient take a sharp, deep inspiration, when the powder is carried in and deposited on the membrane. This is accomplished without pain or annoyance, and with but little unpleasant taste, and the latter only when particles pass through and reach the taste-zone of the pharynx. In the same way, I have given morphine for years.

W. L. CAPELL.

Omaha, Neb.

[The idea is a novel one, but we confess to serious misgivings as to its safety, and as to the possibility of habituation. It is *too easy* for patients to take a narcotic in this way. Remember that this route is now generally employed by cocaine and heroin habitues, many of whom have, no doubt, been led into the habit largely through freedom from the pain and inconvenience of the needle, when the "snuff" is employed, together with the rapidity with which relief is secured by this method. Our advice is to place narcotics in the hands of patients as rarely as possible, depending mainly upon the hypodermic syringe, *used with your own hands*.—ED.]

CURRENT COMMENT BY A COUNTRY DOCTOR

Life - Insurance Examination.—Life-insurance work has its advantages. The pay is certain and the examiner may feel (and justly so) that a certain amount of prestige is gained through being trusted with a work so important to the wellbeing of society. However, the subject has two sides. There is no work requiring a higher degree of technical efficiency than the search for the abnormal in the supposedly normal. Anyone who has served as examiner for the United States Government, especially in that ultra rigid branch of the service, the Marine Corps, even if a civilian, can say this; and the same rule applies to any line of physical examination, civil or governmental. But when such examination-work is the entire or at least an important part of a physician's duty, the problem is not the same as when only an occasional examination is made. Shall we call the latter the "sporadic" examination?

The writer thinks that, as a rule, the country practitioner would be better off without having to undertake this work, but the circumstances usually are such that he can not well get out of it. To the lay mind, it is a very simple matter, and a wrong inter-

pretation is likely to be placed upon refusal to do the work.

The best way is, to go ahead and do it when the work offers. Pay absolutely no attention to the possible effect that rejections may have upon family practice. Be perfectly noncommital to both applicant and agent as far as possible. Make the examination with military accuracy and attention to detail, always remembering that you are not to blame because Mr. Man has neglected the insurance duty for many years. You can not afford to cover up the fact, if known to you, that Mr. M. has been a brave fighter of booze for many years, that he has had a visitation from one of the unholy venereal trinity, nor, yet, that other little things have happened in his career or exist in his family history that modify his chances for acceptance as an insurance risk.

It is not for the doctor to tell lies, to get delayed family protection. Up to date companies as well as organizations of fraternal character protect you in this matter, some even furnishing a supplementary form, to be used in case you can not protect with a certainty the contents of the original examination-blank.

There are many ways of relieving the examiner, who does his duty, from having trouble with his clientele. One way is, to suggest that an examination of urine be made by the home office or that further examination be requested. The medical examiners of insurance organizations make it their business to attend to these matters and can be depended upon to aid the local examiner in every way. It is to their interest to do so.

Sometimes a serious illness awakens a man to the necessity of insurance. If he approaches his family physician, he should be aided to get protection, if that is possible. Have him be frank, and take the same course yourself. It may be that he can be accepted by this course, even if at times at an increased rate or with certain modifications in the policy, if he will submit to a rigid examination and perhaps reexamination after a stated time.

Catalytic Action, and the Small Dose.—Scuessler believed that he had solved the problem of treating human ills and forever done away with empiricism by means of his "ash analysis." He scientifically demonstrated the application of the tissue-salts in disease, but he failed to take into consideration the complexities of organic chemistry and the catalytic action of substances that aid in the metabolism but fail to become incorporated into the living organism as a permanency; although still performing function in body change, whether passing out unchanged or as altered and complex end-products of the physiological laboratory. (Perhaps it would be better to say human laboratory, whether it be normal physiological or pathological.) Scuessler was not to blame for failing to do away with empiricism and place medicine upon a demonstrated chemical basis, for, we are at the beginning of the investigation of this department of science and its application to therapeutics.

The Journal of the American Medical Association of December 26 well comments upon the influence of flavors and vitamins on the human organism. It touches upon the effects upon appetite of even subtle flavors caused by the symbiosis of certain bacteria. The article well emphasizes the wonderful power of the minute over the concrete.

Turn which way we will, and the same thing is brought out, whether it be by demonstration of the inhibitory power of almost unbelievable dilutions of emetine over amebas, or of the lack of seemingly negligible quantities of vitamin to cause cell starvation or death. Daily the advance of science places further confirmation on the often empirically demonstrated effects of the small dose of certain agents. This in face of the fact that we admit that organisms visible only through the ultramicroscope can demonstrate chemical changes capable of overcoming the resistance power of adult human life.

The writer can not tell why the use of seemingly ridiculously small doses of rhusoid will, under a certain well defined symptom-complex, relieve incontinence of urine in one sex, yet, seldom, if ever, in the other; but his own experience as well as that of many others demonstrates to him that this is so. This is pure and simple empiricism, unless our homepathic brethren claim that the rhus acts under the law of like cures like. Still, all-hail to the scientific empiricist—he gets the results now, and later it is shown why he got them.

The wonders are in the infinitely small as much as in the infinitely great. As I step to the door to see whether the storm is over, one star shows itself. It is so far away that it may have gone out before the dawn of the Christian era and still its light be coming to me, because the distance is so great that light vibrations proceeding through space at the rate of 180,000 feet per second are as nothing compared with the immensity of

distance and the insignificance of the human conception of time. That appals the imagination; however, the infinite littleness of division and its complexity is just as mind-staggering.

One does not have to speculate upon the fourth dimension to realize how little we actually know. However, it is a consolation to realize that we, the heirs of human time and endeavor, are at least on a firm foundation and edging along in the paths of knowledge and accuracy. Nothing but bigotry can head us off. But, how can a man be a medical nihilist? What right have we to the assumption that disease is self-limited or incurable?

Pneumonia and Alcoholism.—The writer has recently had very good success with his pheumonia-cases, or else they were very mild and would have gotten well anyway. Be that as it may, they seemed to progress favorably, mainly under aconitine and cactus, with a little bilein and calomel and saturation with calcium creosote. The strapping with adhesive plaster I have resorted to twice, with seemingly good results, but I prefer free access to the chest for inunction and other applications. However, one patient recently nearly required strapping with leather to the bed. He was a newcomer, vigorous, aged 30, and his habits unknown to me.

Early in the course, one of the family asked whether there was any objection to giving the man a little toddy. It was explained that there was, and that alcohol was given only in certain very rare instances under the system of treatment under way. The patient proceeded well until after crisis, when answer to an urgent call discovered him laboring under divers hallucinations, chief among them being of the actual presence in the room of divers unclassified creatures no specimens of which are in the National Museum, and also that he had passed from an invalid to the active and executive head of the house. Questioning brought out the fact that the patient had been a consistent and able fighter of the classic "booze," but along different lines from those of another resident of this very county, Hon. Richmond P. Hobson. Not being satisfied with the comparatively conservative methods along educational, argumentative and legislative channels, his method had been by annihilation through personal consumption. The effects had been crowned with success up to about one quart per day immediately prior to his illness, which probably was brought about largely by exposure.

During the period of high temperature, there had been nothing unusual in the course of the disease, the system being still so vigorous that it responded to reparative efforts in an amazing manner for an alcoholic, but, as soon as the fall of temperature occurred, the aforesaid zoological and other symptoms appeared.

The prompt administration of H-M-C to effect, at the same time following up elimination and giving brucine and capsicum, brought him through, although delirium reappeared as soon as the drugs were dropped or bromides, scutellaroid and drugs of lesser potency resorted to. At no time was there another temperature elevation or symptom of returning lung congestion. Not until the third day could the treatment—which had been carried out with the utmost caution, to avoid cumulative effect — be changed.

Up to the crisis, it had not been necessary to administer anything in the way of a hypnotic. Even gelseminine, the first thought of the writer in high temperature and evidences of excessive brain irritation, had not been required, much less hyoscine. After subsidence of the hallucinations, nervousness gradually quieted under scutellaroid and the tone improved under capsicum and brucine, only very small doses of the capsicum being given.

The former patient now concedes that the Hon. Mr. Hobson's system of booze fighting, whether practical in all details or not, is much better for its advocates, and he has resolved to follow the legislator's methods in the future. He will, unless the disease of alcoholism gets him again.

The use of *quinine in pneumonia* received considerable recent mention. In the form of the valerate, hydrobromide or ferrocyanide, it should be of service, if the quinine rule of never to give it until the secretions are established is observed; however, the writer has seldom found it necessary to depart from his customary list, except to maintain liver action and intestinal antisepsis. This list comprises aconitine and cactus, almost as a routine; veratrine, with an especially full and frequent pulse; pilocarpine, occasionally and cautiously; bryonia, especially with pleural involvement; brucine or strychnine as a stimulant; gelsemoid and hyoscine for delirium; ipecac, sanguinarine, and lobelia for their several indications; the "tissue-salt," potassium chloride, to aid resolution; calcium-creosote a plenty. And, no matter what other remedy is indicated, always intestinal

antiseptics and cholagogs when they are called for.

A. L. NOURSE.

Sawyerville, Ala.

TRANSVERSE PRESENTATION

The three cases of transverse presentation related by Doctor Henriksen in the February issue of CLINICAL MEDICINE, p. 183, recall one that came under my care about one year ago. The position was left scapula anterior, left arm in vagina. Membranes had ruptured with first pain, which pain had continued without cessation for two hours when I was called. The uterus was firmly contracted, holding the child tightly in its abnormal position, from which it could not be moved even under fairly complete chloroform anesthesia, assisted by a full dose of H-M-C.

Bimanual attempts at last restored the arm, and soon the head was engaged in the upper strait. High forceps operation brought the child down easily and a little care prevented laceration. The mother and child got along normally, and there was no elevation of temperature during the puerperium.

The attempt was made to perform version, but after a half hour's hard work, it was decided to use the forceps. A neighbor woman gave the anesthetic and the husband supported the patient.

R. J. SMITH,

Bancroft, Idaho.

SUGAR AS AN OXYTOCIC. THE "TWILIGHT SLEEP"

I wish to thank you for your kindly comments upon my little article on "Smears" (*Med. Record*). The question "What do you want?" at the conclusion of your editorial has a personal appeal, and the answer is easy. It is, "I want to know." Therefore, to you and your army of readers permit me to put two negative questions. Personally, I think I know the positive answers; and my opinion may be corroborated, if necessary.

1. Why is not the juice of one lemon and a heaping tablespoonful of sugar dissolved in a tumblerful of water and administered to a patient in labor, cheaper, safer, and equally efficient in comparison with the hypodermic administration of pituitrin? How do you know?

2. Suppose that in a parturient woman the rectum has been cleansed by means of a purgative enema of, say, normal salt solution. Then, dissolving a tablet of H-M-C and 20 grains of antipyrin in 4 ounces of warm water, this is slowly injected into the rectum and retained, to be absorbed. Suppose, further, that one tablet only of H-M-C were thus employed, and that subsequently an antipyrin enema of 20 grains to 4 ounces of water were administered every two hours in order to prolong or intensify the effect, if that be necessary.

Question: Is not, under this management, the child safer, and are not the maternal pains as much relieved as when subcutaneous and repeated injections of the narcotics are given? Does it not equal or surpass the socalled twilight sleep? And has it ever failed to give the anticipated good results, and, does it not begin to show its soothing effects within thirty minutes after administration? Has it failed you?

Reading THE AMERICAN JOURNAL OF CLINICAL MEDICINE has led me to think that many of its clientele are interested in obstetrics, and I am standing around like a bird with its mouth open, waiting to be filled from an outpouring of better knowledge and experience which it is up to that clientele to furnish. This is an era of efficiency, and what I want is increased powers of performance, the application of which are commonly called wrinkles and shortcuts.

DOUGLAS H. STEWART.

New York City.

MORE ABOUT TWILIGHT SLEEP

I think your correspondent, writing in the August number, under "A Humane Woman," is rather unjust and somewhat hysterical. The plain inference from the magazine article that so stirred her indignation was that the scopolamine-morphine "method" was the prerogative of the Freiburg hospital and that it could not be successfully used by the ordinary physician or institution. Why, therefore, condemn them for the neglect of that which they are incompetent to apply? Also, why insult the profession by the insinuation that a large section of it is tainted with sexual perversion? This, at least, appears to be the inference she draws from the apocryphal account of some sadistic doctor "who derives pleasure from witnessing a primipara in the throes of labor?"

Such are the weird fancies which people absorb and emit from even high-class lay journals when they enter the field of medicine. From even the Hearst editorials one could not draw more insane conclusions.

The editor of *McClure's* complains of "an organized conspiracy against the method." Now, possibly some physicians resented the apparent conclusion that the "method" was the sole property of a German sanitarium. Although this was not directly affirmed, one must draw the conclusion that the method was not to be satisfactorily imitated elsewhere. The magazine, in a later article, tells of a woman who, not being able to obtain her favorite nurse for her approaching confinement, telephones her doctor on the strength of the earlier contribution in regard to her going to Freiburg. The doctor decidedly advises her to make the European trip (this apparently was before the present disturbances), the inference being still that the treatment could not be successfully applied at home.

Now, of course, the doctor who sends his maternity patients abroad "does not care to take confinements." Naturally, the plutocratic physician who treats his office clientele at from $3.00 to $5.00 per call does not care to leave his business for anything so tiresome as an ordinary confinement. Sending the patient away avoids the possible loss of the family by referring her to a colleague. So, Freiburg for his. But the average woman who by no means can afford such a luxury finds that she can get along tolerably well at home.

Furthermore, these lay publications can, as a rule, see but one side of the matter. I myself wrote both to *McClure's* and *The Woman's Home Journal,* endeavoring to correct some misconceptions involved in their articles, but, of course, neither cared to publish my communications. Naturally enough, the magazines are looking for interesting reading rather than dry discussion. The editor of the *Journal* wrote me that he thought any further comment on the matter should be carried on in medical literature, a sensible conclusion under ordinary conditions. But when a lot of false impressions are spread broadcast by popular literature we can by no means correct these through medical journals, which the people never are going to read.

The editor of *McClure's* wrote me that he had no intention of exploiting the Freiburg hospital, but simply wished to call attention to an unknown method. Still, in spite of any actual intention, the articles would no doubt have the effect of an advertisement, though I do not question his right to publish them.

But upon reflection the editor and the "Humane Woman" might make a reasonable deduction as to the suspicion with which physicians regard habit-forming drugs. Does not nearly every "morphine-fiend" refer his downfall to some doctor who forced the habit upon him? Although, naturally, it would be a doctor, as lawyers and clergymen are not supposed to administer analgesics. People require relief from pain and then damn the man who gives it, even under protest, if they are too weak to resist the later effect of the necessary drugs. But here we have a "Humane Woman" and a lay editor making a counter charge against the same profession. In this connection an old rhyme suggests itself to me:

> You can and you can't,
> You will and you won't,
> You'll be damned if you do,
> You'll be damned if you don't.

Well, who's looney now?

As for Germany going us one better, the accounts I get from continental sources would indicate a callousness and neglect in European countries which would not be tolerated at all in America. Because Germany has one hospital where women of wealth and fashion may receive every luxury and refinement of care, does not affect the rank and file of women who must be turned over to the mercies of midwives and clinical students.

Now, it might be inferred from the foregoing that I myself oppose giving anodynes in labor. Far from it, however, and neither the reproaches of the woman or the editor touch me personally in any degree. I have endeavored by every reasonable means to allay any pain where I could safely do so. But I recognize that some who often would withhold anodynes where I would venture to give them do so from motives that are not inhuman or fiendish. Some element of danger lurks in every anesthesia.

Now, in respect to the scopolamine-morphine method. I have used it for some years and find it of value in certain conditions. It is not the panacea which the magazine writers would make it. I regard it as valuable in the first stage, but have had frequently to apply the forceps when it came to the second. The truth seems to be that normal deliveries can have the pain partly blunted, so that the woman forgets what has happened, but the really difficult cases still require artificial aid.

To conclude. Exaggerated and erroneous impressions always follow the reading of popular medical articles. People are prone to believe any unreasonable indictment against the medical profession. Physicians

are not of necessity any better than other respectable people, but as a rule are inclined to relieve suffering if possible and safe to do so. There is always an element of danger in anesthesia and often an extra expense to the patient. The doctor who administers hypodermic medication often is subject to many unjust aspersions. There is no "organized opposition" to the scopolamine-morphine method, but the occasional dangers of habit-forming drugs sometimes make the attendant hesitate to administer them. Chloroform to any extent requires a trained assistant, who may not always be obtained.

Finally, I can sympathize with Doctor Feige, in the October number. People often will take advice from anyone but the doctor, on the apparent ground that everyone but he understands medicine. Still, after a good bout with ineffectual pains, I can bring ninety-five percent of my patients to my way of thinking. There are all degrees of folly, but people who lack a grain of sense are the exception.

H. O. CARRINGTON.

New York, N. Y.

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[We must bear in mind that "A Humane Woman" was not directing her remarks altogether, or even chiefly, at the article in *McClure's*, but to the editorial, in rejoinder, which appeared in the July number of CLINICAL MEDICINE; so that she is not quite so irrelevant or so illogical as Doctor Carrington makes it appear. In that editorial, we had, in effect, poohpoohed the alleged novelty of the twilight sleep, and declared that it was a comparatively old affair, well known to thousands of physicians in this country, and actually practiced by them. Then, retorted "A Humane Woman," if that is the case, why is it that millions of women know nothing about it, and that the thing is still a secret?

The suggestion of sadism in the correspondent's reference to the young doctor who "derived pleasure from witnessing a primipara in the throes of labor" occurred to us, also; but we refrained from commenting on it for two reasons. First, we were not at all sure that our correspondent meant to suggest perversion. It is easy for us medical men, with our minds to certain angles bent, to read meanings into the layman's words that he did not know were there. To a physician, of course, at first blush, such a remark suggests that the man was a sadist, and we resent his being made to stand for anything like a type of the profession. But, on second thought, we doubt very much whether that is really the significance of the thing. More likely the remark, both as made by the man and as quoted by our correspondent, was intended simply as a rather extreme expression of that stand-pat attitude which does unquestionably prevail among a great many even of the profession, that labor is a normal, physiological process, intended by nature to be painful—to which, somehow, pain adds heroism and worth—and from which something is detracted by robbing it of its pain.

Our second reason for avoiding a discussion of the implied sadism was, that it would have drawn us away from the main aspect of the subject. The real essence of our correspondent's rather bitter reproach was that the profession had apparently entered into a conspiracy of silence, if not of concealment—a state of affairs which the editor of *McClure's* also felt to be the case. And, in spite of Doctor Carrington's denial that such a conspiracy exists—no doubt it does not, in the sense of a deliberate conspiracy among physicians themselves—we are still of opinion, as we said in our editorial, that there *has* been a constitutional opposition on the part of organized medicine, such as organization invariably offers to all innovation and progress that does not originate within the sacrosanct circle.

However, this is all beside the mark now. The prime necessity of the moment is to get it into our heads, and to promulgate among our professional family, that the demand for the relief of suffering in labor is a perfectly proper and legitimate one, which the womanhood of the present day has an unquestioned right to make upon medical science. That, furthermore, it is an insistent demand, which, sooner or later, the medical profession will be compelled to satisfy, or to account to the public for its failure. That the twilight sleep of hyoscine and morphine affords an adequate and legitimate means of meeting the demand, the neglect of which is a plain dereliction of duty on the part of the physician. And that there is no reason whatever why this twilight sleep cannot be given to women in their own homes, provided a reasonable degree of skill and care and pains be applied to its administration.—ED.]

Just Among Friends

A DEPARTMENT OF GOOD MEDICINE AND GOOD CHEER FOR THE WAYFARING DOCTOR

Conducted by GEORGE F. BUTLER, A. M., M. D.

IN THE present installment, I am going to consider the tonic and alterative action of the three metallic remedies, copper, arsenic, and mercury, in the anemias and other conditions calling for treatment of this nature.

The blood, especially so far as its cell-elements are concerned, is a changing fluid. The cells of the blood, particularly the erythrocytes, undergo a phase of altruistic development whereby, like the embryonic tissues, they surrender their reproductive powers for the benefit of organism nutriment. Arrest of development at a certain point, therefore, means a degeneracy whereby the old blood-cells gain, like a cancer, at the expense of the organism as a whole. It is this condition that essentially constitutes what is called pernicious anemia. The red blood-cell, in this disease, has the embryonic potentialities of the cell in cancer. The factors underlying this arrested cell development of the blood imply more factors than the simple incapacity to take up iron and act as a carrier of oxygen.

The autotoxemia and constipation, which constitute the great danger of pernicious anemia, clearly are products of more than suboxidation due to imperfect oxygen-carrying powers of the red blood-cells.

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There is, as any analysis of the cases will show, a toxemic precedent to the pernicious anemia, which either arrests completely proper development of the blood-cell, or which disappears, having produced merely temporary effects that disappear with it, as in the many cases of cures of alleged pernicious anemia resultant from ameboid dysentery, malaria, syphilis, scurvy, diabetes, and nephritis, and exceptionally reported after yellow-fever, acute hepatic atrophy, cholera, and a few other diseases. Here the original toxemia is the serious factor, and not the resulting arrest of blood-cell development. The blood-cells contain albuminous matter, as well as hemoglobin and fat. The supply of these, either directly or indirectly, through healthy nutrition is absolutely necessary. Their proper distribution in relation to other elements likewise is needed.

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These elements in the reproduction of conditions leading to the removal of spanemia are best obtained by the use of alteratives, which improve the nutrition of the body without exerting any very perceptible action upon individual organs. Healthy nutrition depends upon a proper supply of oxygen and nutriment to each tissue and organ in the body, and upon the proper amount and kind of tissue change in the various cells, and upon the proper removal of waste. The proper supply of oxygen and of nutriment to the body generally will depend upon the state of the assimilatory and digestive organs. And this proper supply of oxygen to the tissues, as well as removal of waste from them, will depend upon the circulation, and the removal of waste from the body generally will depend upon the lungs, bowels, skin, *and kidneys*.

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Copper is reputed to be a violent poison, yet, except so far as its toxic effects as a foreign body in the eye are concerned, this repute is decidedly undeserved. Kiernan has called attention to the fact that copper enjoyed among alchemic physicians a great reputation for what later were called nervine alterative qualities, in epilepsy, chorea, and insanity; whereof Burton's "Anatomy of Melancholy" gives evidence. Its repute led Paracelsus to make it the basis of one of his metallic tinctures; and from him Rademacher took the therapeutic indications and the tincture at present employed by the Eclectics. That the Paracelsian use of copper never was completely abandoned by regular physicians, is apparent from the perusal of the first two American Dispensatories, those of Redman Coxe (1810) and of Thacher (1812). In both works, copper is recommended as an alterative tonic useful in epilepsy, chorea, and other spasmodic conditions, especially those connected with debility. Later therapeutists sustain this old repute of copper.

According to Philips, J. V. Shoemaker, Biddle, Hare, Lauder Brunton, Potter, Culbreth, Foster, and others, the drug, in small doses, stimulates both the heart and the capillary circulation and is a general nerve tonic. In the eighth and ninth decades of the nineteenth century, copper assumed a new phase in periodic medical literature. Luton and Liegeois showed that copper was of value in chlorosis, anemia, cachectic states, and as a nervine alterative. Some eighteen or twenty years ago, A. F. A. Price found that, while slow in affecting the secondary symptoms of syphilis, copper prevented the development of mucous patches and throat symptoms. The first evidence of copper saturation of the system was a voracious appetite, followed by giddiness, vertigo, prostration, and other symptoms characteristic of occupational copper poisoning. As with other alteratives, Price had the best results from small doses frequently repeated. In cachectic states, 1-1000 grain of copper sulphate once daily had proved of marked value. Later, Price confirmed his results and extended this therapy, showing the value of establishing copper tolerance in the early stages of syphilis.

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As to the preparation to be employed, Redman Coxe, Thacher and Price, while finding copper sulphate of value, all agree that at times it produces unexpected dangerous untoward effects when the point of saturation is reached. These effects, through the influence of the drug upon the vascular system, often take—as Kiernan has shown—the direction of cardiac neuralgias and pseudo anginas. The double salts of copper, in small doses, exert a cardiac action similar to that of digitalin, strophanthin, helleborein, and so on. Hare prefers copper arsenite. I have found that under its use digestion and nutrition improve. It is superior to Fowler's solution in chorea and similar neuroses. Luton and Liegeois prefer a pill containing 1-6 grain of neutral copper acetate and 5-8 grain of crystalline sodium phosphate. For hypodermic use they employ a solution of copper phosphate, freshly made by dissolving 1 part in 2 1-2 parts each of glycerin and water. The specific tincture of copper of the Eclectics, which is the old Paracelsian tincture robbed of its crudities, has been employed in chlorosis, syphilis, chorea, epilepsy, neuralgia, and nervous adynamic states, in 3- to 6-minim doses, frequently repeated, until the evidences of saturation already described appear.

The therapeutic indications for copper, as named by Rademacher, are: a grayish complexion; sunken features; small, soft, wiry pulse; light-colored, very acid urine; and early nerve symptoms, hallucinations, convulsions, delirium, and so on. All of these symptoms are indications of what the older clinicians called nervous adynamia, a precursory suboxidation toxemic stage of neurasthenia.

Arsenic is another agent of similar alterative type. It markedly stimulates, in small doses, the blood-making processes, and exerts a decided influence upon the general tone and on renal and hepatic action. It can be very advantageously combined with copper, with gold, and with the bitter and ferruginous tonics. Strychnine is a valuable adjuvant. The bromide of gold and arsenic preparations have an excellent field as alteratives in chlorosis.

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The third alterative under consideration, mercury, sometimes is of decided benefit in chlorosis, even when there is no specific infection. Inunctions of a small amount of mercurial ointment once a day or every other day, or small doses of mercuric chloride, from 1-60 to 1-40 grain, prove very beneficial in some cases. When iron alone is given, it will be found quite often that the drug is not absorbed, but passes through and out of the bowels, or else it accumulates in the liver; in both instances failing to be utilized and assimilated into a living part of the vitalized organism. In this case, it has been found that the addition of nuclein solution to the prescription, in doses not exceeding 1 dram daily (preferably administered by being dropped under the tongue) apparently causes the fixation of the iron in the blood and tissues; and the gain will far exceed that accruing from the use either of iron or nuclein alone. The administration of the arsenates of strychnine, quinine, and iron with nuclein often will produce excellent results.

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As the condition is essentially a hydremic toxemia, venesection would seem at times to be indicated. In the palmy days of this measure, so illogically disused by the profession for popular cosmetic reasons, excellent results were obtained from venesection by eminent clinicians. About a quarter of a century ago, Fordyce Barker revived it, with decided success. The use of normal salt solution undoubtedly adds to its efficacy, as this alone could initiate alterative conditions.

In connection with opotherapy, the value of diphtheria antitoxin must be remembered. This has often initiated, through its alterative action, improvement in leukemic states more grave than chlorosis. Like all alteratives, and inclusive of organotherapy, its use should be accompanied by careful watchfulness of elimination. To the neglect of this precaution we owe most of the failures and untoward effects of the therapy of chlorosis.

It should not be forgotten, in this connection, that an improvement may be overcome by under-elimination. The pale urine of nervous states is an indication of renal insufficiency, not a true renal elimination. Chlorotics, in the nature of things, are very likely to excrete, without eliminating. Free elimination should be maintained through all the excretory channels, especially through the bowels and kidneys. Frequently it is advisable to give some intestinal antiseptic, the sulphocarbolates being, perhaps, as good as any. It will often be necessary, also, to give some cardiac tonic.

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In toxemic conditions, such as secondary malarial manifestations, with the resultant pallor, copper and arsenic are of decided value. Cases in which the periodic tendency has disappeared improve decidedly under copper and arsenic, when quinine and iron are worse than useless. The influence of arsenic is very marked in chronic rheumatism and so-called rheumatic gout, neuralgias of various sorts, in tic and hemicrania, as also in angina pectoris, chorea, epilepsy, and asthma. In certain of the gouty bronchites, at the onset of phthisis, in imperfectly cleared-up pneumonic lung consolidation, arsenic acts sometimes with remarkable efficacy.

In the effects of arsenic and copper just detailed are to be seen the ideal action of the alterative, an action opposed in certain particulars to that of the restorative, to which category iron belongs.

For restoratives not causing tissue change there must be created a condition favorable to assimilation before the system can receive and apply them. If this does not occur, they act simply as poisons, by overaccumulation, whence the many objectionable untoward effects which occur from iron in cases of spanemia, where this restorative is not assimilated. In chlorosis, where iron notoriously fails in many cases, copper and arsenic very frequently produce marked and decided improvement, not only as regards the red blood-cells, but in the general nervous vitality. The fact that arsenic acts as an excellent respiratory stimulant and tonic in mountain climbing makes it peculiarly suitable in conditions, such as chlorosis, where general air-hunger is as marked as in nephritis and diabetic conditions. Indeed, in most spanemic states, tissue air-hunger is a very unpleasant feature, sometimes underlying the condition of local exhaustion and of local pain which provokes local exhaustion.

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The fact that the organic irons succeed better than the inorganic compounds is an indication that assimilation is necessary to the influence of a restorative, while an alterative of necessity provokes its own assimilation. Arsenic and copper have been found in small quantities in the thyroid gland, a fact that would indicate their natural presence as an alterative in the system.

The influence of both drugs upon the liver, the two-fold functions of which are so necessary to the tissue changes of the system, show that both drugs play a part in assisting assimilation and at the same time in destroying waste products. It must be remembered that, as Minot, the embryologist, has shown, the liver has two functions, one of which is a blood-making and the other a poison-destroying function. The stimulation of both of these functions is necessary to an alterative, under the principles already laid down.

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The best time to operate on exophthalmic goiter cases is before cardiac dilation sets in. This may occur within a few weeks or may be delayed for months. The time to leave a case to medical treatment is during the period of cardiac dilation, which may be from a few months to two years after the onset of initial symptoms. Later again, operation may be considered during the periods of quiescence, which occur in all these cases.—*MacKechnie.*

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In cases of hematuria suspect tuberculosis of the kidney and do not delay the animal-inoculation test too long. During the month of development other tests may be done. Many of these cases can be cured by nephrectomy if taken in the early stages, even before the cystoscope will reveal ureteral changes or the ordinary tests will show tuberculous infection.—*MacKechnie.*

Among the Books

KIRKE: "PHYSIOLOGY"

Kirke's Handbook of Physiology. Revised and Rewritten by Charles Wilson Greene, A. M., Ph. D. With 509 illustrations, many in colors. Eighth American revision. New York: William Wood & Co. 1914. Price $3.00.

History is making very rapidly in the realm of physiology—especially in the division of physiologic chemistry. But, in the making, there is, as with all history, a large amount of incidental and spurious activity. the results of which, in the final evaluation, have to be winnowed from those of genuine and permanent progress. It is this discriminative task that the reviser of a standard textbook on physiology is obliged to perform in the preparation of his successive editions, and it is by the carefulness and efficiency with which he accomplishes this object that the continued success of a work stands or falls.

Judged from this standpoint, Doctor Greene's latest edition of Kirke measures up to the standard heretofore set for the book. It represents a very fair and judicial embodiment of the state of our most recent knowledge in physiology. It is neither surprising nor derogatory that the present edition retains the general size and amount of content of its predecessor, for, whatever additions have been made to the subject have virtually been offset by the abandonment of obsolete doctrines and practices. In our opinion, the new Kirke is about as good a textbook on physiology as the medical student—or the practitioner either, for that matter—could use.

GOODMAN: "BLOOD PRESSURE"

Blood Pressure, in Medicine and Surgery: A Guide for Students and Practitioners. By Edward H. Goodman, M. D., associate in medicine in the University of Pennsylvania. Philadelphia and New York: Lea & Febiger. 1914. Price $1.50.

This, of course, is not the first or the only work on the blood pressure that has appeared in recent years, but it seems to have a place of its own in the literature of the subject, nevertheless, in that the presentation is quite different from that attempted in any other book, at least so far as the reviewer has seen. The motif of the book is wholly clinical. It has been the author's avowed aim to make fully available the assistance which the study of blood pressure affords in the diagnosis, prognosis, and treatment of disease. With this end in view, the subject is presented in a manner conforming to the methods generally followed in presenting the rest of our clinical knowledge.

After a discussion, in the first few chapters, of the philosophy of blood pressure in general, and a description of the methods of estimating it, the author devotes the later chapters to separate considerations of the significance of blood pressure in the various classes of disease; in nervous disorders, in obstetrics, in surgery, in ophthalmology, and so on. Thus, the subject is expounded to the reader in the sequence, and from the standpoint, which, as a clinician, most nearly concerns him and most intelligibly appeals to him.

We cannot refrain from echoing here the warning of the author against the foolish practice of relying upon digital palpation for the estimation of the blood pressure. Every physician should furnish himself with a sphygmomanometer, and then procure a book like this of Goodman's from which to learn thoroughly how to use and to evaluate this phenomenon.

TULEY: "PEDIATRICS"

Pediatrics: A Manual for Students and Practitioners. By Henry Enos Tuley, A. B., M. D. Second edition, revised. Including a selected list of state-board examination questions. With 33 engravings. Philadelphia and New York: Lea & Febiger. 1914. Price $1.00.

The present edition of this little book, which is published by Lea & Febiger as one of their Medical Epitome Series, is, of course, a very abridged form of the same author's larger textbook. The purpose of the abridgment is made sufficiently clear by the inclu-

sion of a set of state-board examination questions.

Its prime object, evidently, is to furnish the student with a "cram" for the state-board quiz—for which we do not criticize the authors and publishers of such books so much as the system which makes them necessary. So long as state-board examinations are conducted in the manner in which they are, presumably there will be a demand for short-cut manuals by means of which the unhappy student may, in the last few weeks, "prepare" himself for the ordeal; and one can hardly blame anyone concerned for the appearance of books of this character and for this purpose.

However, we would not be understood as saying that Doctor Tuley's smaller book has no other use or value than that of an examination cram. For the busy practitioner who has studied pediatrics from the ground up, it will undoubtedly prove a very useful reminder and reference. It must be admitted that the epitomizing has been done with great skill and judgment, so that the meat of the subject is all there—which cannot be said of every such attempted epitomization. Doctor Tuley is an excellent teacher.

BROTHERS: "MEDICAL JURISPRUDENCE"

Medical Jurisprudence: A Statement of the Law of Forensic Medicine. By Elmer D. Brothers, B. S., LL. B., of the Chicago Bar. St. Louis: The C. V. Mosby Company. 1914. Price $3.00.

The author has been a lecturer on medical jurisprudence in the medical department of the University of Illinois, and elsewhere, for the last twenty years, and he now complains that during that time he has not been able to find a satisfactory text on the legal aspects of the subject to recommend to his students. So, in the last resort, he has written one himself.

We cannot—we really can not—see that he has improved very much upon the text-books that already were in the field. Off-hand, we should venture a bet that Mr. Brothers' book represents the outline which he used in his lecture course before his students. At all events, that is what it amounts to—a lecture outline, and not a particularly well-arranged one at that—and, while it may very well serve the needs of Mr. Brothers' own classes, who sit under his personal instruction, while in his oral lectures he follows the outline here laid down, it can hardly be expected to have much value for the student who does not enjoy that high privilege.

Mr. Brothers' intentions are excellent. There *is*, as he asseverates, a real need for a textbook that shall expound the legal phase of the subject; such a book is lacking. But, if he wishes to be the author of such a work, he must make up his mind to give a little more serious attention and labor to the task than evidently he has brought to the task.

STITT: "TROPICAL DISEASES"

The Diagnostics and Treatment of Tropical Diseases. By E. R. Stitt, A. B., M. D. With 86 illustrations. Philadelphia: P. Blakiston's Son & Co. 1914. Price $2.00.

The policy of territorial expansion into which the United States has been forced in the last twenty years or so, and more especially during and since the Spanish War, has stimulated medical interest in this country in the diseases peculiar to tropical climates, and produced a school of investigators here which bids fair to rival the London School of Tropical Medicine. And when we further consider, as the author of this book reminds us, that a knowledge of many of these diseases is just as important to the medical man in the southern states of the United States as for the physician in tropical colonial possessions, it will be realized that there is more of a real, practical side to tropical medicine than we in the north as a rule are prepared to admit.

Of the group of able investigators of tropical diseases that has arisen in this country, Doctor Stitt, who heads the department of tropical medicine of the U. S. Naval Medical School, easily stands in the first rank; and his book easily may stand as a standard exponent of the subject. The chief feature of the book is the presentation, in Part II, of the clinical side of tropical medicine from a standpoint of the signs and symptoms of the diseases which are connected with anatomical or clinical groupings, rather than from the side of the individual disease. In another chapter, the diagnostic points to be obtained from a study of the temperature-chart are given, while in still another chapter the neurological manifestations that may be noted in various tropical diseases are presented.

In fact, it may be said, the whole tenor of the book is clinical; the author has aimed to

set before us his methods of teaching the subject from the clinical rather than from the laboratory standpoint, while he has so cross-referenced the work that the reader has the subject presented to him from every imaginable angle.

"REFERENCE HANDBOOK OF MEDICAL SCIENCES"

Reference Handbook of the Medical Sciences. Edited by Thomas Lathrop Stedman, A. M., M. D. Third edition, com pletely revised and rewritten. Complete in 8 volumes. Volume IV. New York: William Wood & Co. 1914. Price, per volume, $7.00.

The fourth volume of this ably edited work has rather a large alphabetical range, from "Emb-" to "Hay-," which at once will indicate to the reader the inclusion of some very important subjects, notably the eye, the fetus, food, the foot, fractures, the genital organs, the glands, and gestation. All of these subjects are treated with the comprehensiveness and discrimination that we have become accustomed to look for under Stedman's editorship; and the intervening topics receive their proper proportion and degree of attention. It is a splendid work splendidly accomplished, and we find ourselves marveling more and more each time we take up a fresh volume at the courage and the ability displayed in the undertaking and achievement of such a colossal task.

WRIGHT AND SMITH: "NOSE AND THROAT"

Textbook of Diseases of the Nose and Throat. By Jonathan Wright, M. D., and Harmon Smith, M. D. With 313 engravings and 14 plates. Philadelphia and New York: Lea & Febiger. 1914. Price $5.00.

As might be inferred from the connection of Prof. Jonathan Wright, of the New York Post-Graduate School, with this book, as its senior joint author, its exceptional feature is, the emphasis which it lays upon the etiology and pathology of the diseases whereof it treats. It essays to deal with nasal, pharyngeal, and laryngeal morbid processes from this standpoint, which, of course, involves a rather extended consideration of histology and physiology, and even of biology. This, as everybody knows, is where Doctor Wright shines. Biological pathology is "his middle name." Much of the work in etiology and pathology contained in the work, we are assured, rests upon original investigation pursued for years in the laboratory and clinic by one of the authors (meaning Wright, no doubt).

However, while no apology is made for the more than usual space devoted to this aspect of the subject, symptomatology and diagnosis have not been neglected; on the contrary, the topical and operative aspects of diseases of the upper air-passages are dealt with in a manner just as thorough and masterly as that which characterizes the rest of the book. Several excellent colored plates show clearly certain diagnostic and pathologic conditions. But, in the end, we must agree with the authors' own estimate of the work, namely, that it is in the phases of etiology and pathology that it rises superior to other contemporary works on the ear, nose, and throat.

MOYNIHAN: "ABDOMINAL OPERATIONS"

Abdominal Operations. By Sir Berkeley Moynihan, M. S. Third edition, revised and enlarged. In 2 volumes. With 371 illustrations, 5 in colors. Philadelphia and London: The W. B. Saunders Company. 1914. Price $10.00.

Doctor Moynihan is probably the ablest exponent of abdominal surgery among modern English surgeons. Indeed, in many respects, one may regard a book on the subject from his pen as an author's description of his own invention; for, many of the features of modern abdominal surgery, both in principle and in technic, are the products of Doctor Moynihan's keen brain and facile scalpel.

The third edition comes to us almost in the character of an entirely new work. The second edition had long been out of print, and so many innovations have occurred since that was written as to make a complete rewriting imperative. A significant feature of the present edition is, the debt of gratitude which the author cordially expresses to the surgeons of America, mentioning especially, by name, the brothers Mayo, John B. Murphy, and George W. Crile; thus indicating the invaluable part played by these four men of our own country in the progress of abdominal surgery.

Only those operations which are common to both sexes are included in this work; no gynecological operations are described. The

presswork, illustrations, and binding are in Saunders' best style, and the cuts are most illuminating and helpful. A small section—very small—is devoted to gunshot wounds of the stomach. Doubtless, if the book were to be written now, the author would considerably enlarge this chapter; so, it is just as well that he finished it before the world-war broke out.

DOCTOR BUTLER'S NEW BOOK: "THE TRAVAIL OF A SOUL"

If you have—and of course you have, for one man is very like another—if you have experienced the deep longing and painful struggling of the soul, in its bondage of moiling and of petty carking cares, after some unattainable ideal of loveliness; if you have oved among the hardships and the common-places of life with a hidden vision in your soul, which "never passes into nothingness, but still keeps a bower quiet for you, full of sweet dreams, and health, and quiet beauty"; then your pulses will quicken and your secret spirit will respond to the profound and beautiful touches with which the author of "The Travail of a Soul" reaches and interprets your inmost heart.

In a sense, of course, the beauty of the lyric is the beauty of sadness. That is inevitable. "Our sweetest songs are those that tell of saddest thought." But it is not a poignant sadness. Neither is it the sadness of morbidity; far less of gloom and hopelessness. It is the sadness of the inaccessible—of longing and striving and disappointment, of passion unrequited; but unquenched, of hope baffled but not extinguished, of ideals missed but not surrendered—in a word, the exquisite sadness of life itself. It is, in fact, the inner drama of a soul; and, as with all strong, true souls, underneath the haunting minor refrain there is a singing major strain—a figure which I am well aware is a little anomalous as applied to technical music, but which quite correctly exemplifies that strange symphony called life.

"The Travail of a Soul" is a beautiful work, beautifully done. Did I not say, when I spoke prospectively of it last month that it was Butler at his best? Let me confess, frankly, that I who have known Doctor Butler for years, and have known (or thought I knew) all the power and charm of his poesy, was taken by surprise with this supreme production. It is such a work as one might gladly achieve and die—not that I am at all anxious for Doctor Butler to die yet awhile.

The introductory apostrophe to Venus de Milo is a sheer classic, nothing less. Again I confess that I did not know the author was capable of such an effort; and I thought I knew something of his capacity, too. I will further confess, however, that in the text of the lyric itself (one hardly knows whether to call it a lyric or an epic—it is lyric in its beauty, epic in its dramatization of the inner life) I find the most profound and sympathetic appeal to my intimate heart.

You must have the book, doctor. If you have any sense at all of the beauty and pathos of your own secret, inner strivings after peace and joy, you must have the book and read it. You made a great mistake if you did not subscribe at the first call. I understand there are still a few available, so that you can still secure one if you act promptly. The subscription list is, of course, closed, and the price of the book is now $3.00. But if it were ten times the price, it would be worth it. Suppose you were able to get a masterpiece of painting for $3.00! I warrant you will get more joy and inspiration out of this master-piece of literature than you would out of the painting. I shall be greatly deceived in the CLINICAL MEDICINE family if there is not an immediate demand for the remaining copies—and you will be losers if you fail to get them Send your check without delay to Doctor Butler, at Mudlavia, Indiana.

Condensed Queries Answered

While the editors make replies to these queries as they are able, they are very far from wishing to monopolize the stage and would be pleased to hear from any reader who can furnish further and better information. Moreover, we would urge those seeking advice to report their results, whether good or bad. In all cases please give the number of the query when writing anything concerning it. Positively no attention paid to anonymous letters.

Queries

QUERY 6072.—"A Perambulating Parasite: Larva Migrans." C. L. R., Oklahoma, presents a most peculiar case, which he requests us to unravel. Three months ago, a woman of forty-five, living in the country, consulted him for a lump, she had on her jaw, and swollen eyes. Since that time, this "lump" and the swelling have been moving around to various locations. The patient said she could tell from the pain where the nodule would locate when it began to move. "In three days' time, for instance," the Doctor states, "it would move from the face, down the neck, across the shoulder and down the back, across the back, and eventually settle on the thigh. So, a few days prior to this letter, it changed from one shoulder to the other, then down to the breast, where the woman applied some 'drawing salve.' Then, in a few hours, she noticed a white spot in the center of the bump. This she squeezed, whereupon a small worm (which the Doctor mailed us for identification) came out. It had about the diameter of the lead in a pencil and was 1-4 to 1-2 inch long." (Being now dried up, it is not nearly as large, of course.) "The woman still is bothered with this kind of worm," the letter runs, "boring around from place to place. I presume it travels between the skin and muscle, through the superficial fasciæ." Interpretation and treatment are wanted.

A bacteriologist, to whom the specimen was submitted, considered the "worm" to be the larva of a fly usually found in apples or nuts, and he pronounced it an impossibility for it either to enter the tissues, and much less to move around therein. However, careful consideration of the fact submitted led the present writer to make a more minute examination, and, although the specimen was in bad condition, it revealed, upon treatment with a weak potassium-hydrate solution, all the characteristics of the larva of the botfly, or oestreus (genus gastrophilus); there being ten segments and hooklets, with (at the head end, apparently) two suckers. Hence, it probably is the larva migrans of Crocker, the parasite responsible for the socalled "creeping eruption" described by Lee, Kaposi, and others. This malady is comparatively common in southern Russia, while during the last ten years several cases have been recorded in this country.

The starting-point of this invasion naturally is on parts of the body most exposed to attack by the fly. Very exceptionally more than one such parasite is present; in a few cases, three or more having been reported. Always, however, the "burrow" has been easily distinguishable and is about 1-8 to 1-6 of an inch in diameter, perceptibly raised and of a pale-pink or reddish color. Still, in none of the cases reported has the parasite migrated "from one part of the body to another" or traversed any great extent of tissue.

You are familiar, of course, with the fact that the screw-worm fly (chrysomyia macellaria) and the warble-fly (hypoderma lineata) commonly deposit their eggs in cuts, sores, nostrils or other body orifices of animals, and that in Texas and other parts of the country where large flocks of sheep are pastured humans not infrequently are infected. However, the screwworm and the larva of the warble-fly cannot possibly move from one part of the body to another. The eggs hatch in a few hours and the larvæ (or "maggots") burrow in the adjacent flesh for from four to six days and then, if not destroyed, leave the wound, in order to crawl into the earth, where they pass into the quiescent pupal state. Every country physician is familiar with the grubs, bots, and so on, found under the skin of the backs of cattle.

Clearly, it would be quite impossible for any parasite to proceed in three days' time from "the face down the neck, and proceeding

onward down to the thigh," or to "work from one shoulder to the other and thence down to the breast," there coming to the surface upon the application of a "drawing ointment."

If the "worm" sent us really was expressed from a spot on the breast, you may rest assured that the initial lesion was in that immediate vicinity, and as this is (at least usually) one of the least exposed parts of the body, it seems very unlikely that an egg could have been deposited there.

Stelwagon says, "the larvæ of both the families of the muscidæ and the œstridæ occasionally invade the human skin. The eggs of the former are deposited, usually, in open sores and ulcers; of the latter, in the skin through a puncture made by the insect, most frequently on an exposed part. Here, the larvæ develop and give rise to a furuncle-like tumor. These formations generally have a central aperture through which a seropurulent or sanguinopurulent fluid exudes. In some cases, as a result of burrowing of the worm, an irregular line of a purplish or reddish color, resembling an inflamed lymphatic, is produced. In extremely rare cases, considerable surface may be traversed by the larvæ before final suppurative action is excited, and a puslike tumor form, from which the worm is pressed out or extracted."

Of course, it would be impossible for your patient to decide just where the migrating larva would come to the surface, while, as we have pointed out, their track would be clearly indicated.

It remains to discover whether your patient really does harbor larvæ of any kind. It is particularly desirable that any induration the woman may have be opened and the contents expressed and forwarded for thorough examination. It would be well to investigate carefully all her movements during the past few months; above all, whether she was in any way particularly exposed three months ago, the time the swelling first appeared on the jaw.

In closing, we would call attention to the *possibility* of a multiple invasion; that is, that one egg may have been laid under the skin of the face (the site of the first swelling) and another under the skin of the breast, in which locality the larva forwarded is supposed to have been expressed. The larva in the face may have failed to reach maturity or may have been expelled without being noticed, and some time later the breast lesion may have formed.

All these things are possible, but the migration of a single larva from one part of the body to a *distant* area must be absolutely negated—one should think. We trust you will favor us with further and, if possible, more definite information.

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QUERY 6073.—"Effect of Vaseline and Glycerin Upon the Hair. Shampoos." M. G. R., Ontario, submits the following question: "Is common vaseline a good thing to apply to the scalp as a hair tonic? The hair appears to get very dry in a day or so after an application of vaseline. Has vaseline an astringent or a drying effect. If so, would it be good for a scalp which is too oily, and contraindicated where a tendency to dryness is present? Vaseline has become so common a base for different applications and is so frequently used as a scalp rub that we should know something definite about it. If it does stimulate the growth of hair, we should use it, but then we should avoid it as a base when applying remedies on the face and exposed parts of the arms lest we produce work for the electric needle. One author states that, as vaseline is a mineral product, it should not be applied to the scalp. Does goose-grease stimulate the growth of hair?

"What about glycerin as a base for preparations designed to aid the growth of hair? Glycerin is recommended by one author as being very much superior to vaseline, vegetable oils and greases or, in fact, anything else. He states that when the hair is dry and brittle a few drops of glycerin will moisten it and render it soft and silky. That, moreover, it is cleanly, being readily washed away with water alone. He states that as a dressing for the hair it is incomparably superior to anything ever used for that purpose. If glycerin is good for the scalp, could it be used both in dry and in excessively oily conditions?

"Please give detailed formulas for a good egg shampoo. I bought, in a glass tumbler (about 10 ounces), what is called egg shampoo, for 16 2-3 cents at wholesale. This is a whitish substance of about the consistency of thick soft soap and having an odor resembling a good quality of soap chips. It cleanses the scalp and leaves the hair nice and fluffy. As this is 'common drugstore stuff' (without the formula) and, as I have no faith whatever in most things from this source, I ask for something I can compound myself. Also give formula for 'dry shampoo,' for use by invalids having oily hair.

"Also give the best treatment (with detailed formulas) for face bleaching, stating price of the best illustrated book containing

formulas and treatment for all hair troubles, including removal of superfluous hair. Also book (illustrated) on manicuring, and cosmetics."

Vaseline, as you are aware, is not absorbed by the skin, but is an excellent application to dry hair. A pure product has neither an astringent nor drying effect, and, therefore, should not be applied to an already oily scalp. Vaseline is used so commonly as a base for ointments, and so on, because of its permanency, freedom from odor and liability to become rancid.

Crude vaseline (unguentum petrolei) may exert a slightly irritant effect, especially upon the sensitive skin of the face, and thus stimulate somewhat the growth of lanugo. As it is not absorbed, however, it cannot possibly exert a direct tonic influence upon the hair-follicles of the scalp. The friction accompanying a thorough rubbing in of vaseline would, of course, increase the supply of blood to the parts and thus, theoretically at least, improve the growth of the hair. We are inclined to agree with the author, who states that vaseline should not be used as a remedial agent in diseases of the scalp. Animal- or vegetable-oils are decidedly preferable, but it should be remembered that they must be carefully removed every few days, to prevent the unabsorbed portions from becoming rancid and acrid.

Glycerin, under certain conditions, may advantageously be applied to the scalp and where the hair is dry or inclined to fall out; a small quantity being applied every two or three days, not alone to the scalp, but to the hair itself, by means of a fairly fine comb. This writer adopts the following procedure:

The scalp is thoroughly washed, preferably with a tar soap. The hair then is rinsed thoroughly with plain warm water and dried. With the finger-tips, a small quantity of glycerin is rubbed into the scalp, then a comb moistened with glycerin is passed gently through the hair several times. A very few drops, thus used, will suffice for even the heaviest growth of hair. As you have pointed out, one good point is that glycerin is readily removed by washing with plain water.

It is unnecessary to point out that the application of a substance which proves beneficial in one case may be useless or even injurious in another.

You will find a very exhaustive chapter on alopecia and other diseases of the hair and scalp in Stelwagon's "Diseases of the Skin," where also some excellent formulas are given. Vaseline alone is rarely recommended as a base, though this and lanolin in combination are frequently employed.

Lassar recommends for alopecia furfuracea thorough washing of the scalp with tar soap, rinsing, drying, and the application of a lotion consisting of 3 grains of corrosive sublimate, 2 ounces of alcohol, and 5 drams each of glycerin and deodorized alcohol. The scalp is then dried and an alcoholic solution of naphthol, 1 percent, lightly brushed in, followed by a few drops of carbolized oil. This treatment doubtless will prove efficacious, but this writer questions whether the average American would approve of it.

One of the most satisfactory shampoos one can use consists of tincture of green soap containing 5 or 10 grains of resorcin to each ounce.

Most of the socalled "egg shampoos" on the market do not contain egg at all, which accounts for the reduced number of these preparations offered since the passage of the Pure Food and Drug Act.

An excellent shampoo cream is prepared as follows:

White Castile soap	ozs. 8
Potassium carbonate	ozs. 2
Water	ozs. 12
Glycerin	ozs. 4
Oil of lavender	gtt. 10
Oil of bergamot	gtt. 20

Shave the soap in thin slices, melt with the water on a water-bath, add the potassium carbonate, and stir until dissolved; allow to become nearly cold, then stir in the glycerin and oils. If too thick, more water may be added. If a clear cream is desired, substitute a transparent soap for the white castile. If you are willing to take the chance, add the well-beaten white of one or two eggs when the mixture has become cool enough to prevent coagulation of the albumen.

This cream can be placed on the market in clear glass jars holding from 2 to 4 ounces, according to the price at which it is to be sold. Pour it into the jars after it has cooled.

Another shampoo cream, one that is almost transparent, may be prepared as follows:

Coconut-oil	ozs. 6
Cottonseed-oil	oz. 1
Caustic potash	drs. 14
Water	enough

The oils are heated to 175° F., then half of the caustic potash is dissolved in 4 ounces of water and added slowly, with constant stirring. As the mixture thickens, add the remainder of the caustic potash dissolved in 8 ounces of water. Add very gradually, and

heat so that the mixture boils gently. Remove the scum as fast as it arises, and continue until the mixture forms a thick cream on cooling. Oil of lavender and oil of bergamot, or any other perfume. may be added. These must be added after the boiling has been completed and the mixture removed from the fire. Egg-white may be added as in the preceding formula.

It is probable that the egg shampoo you bought was of similar composition.

Almond-meal undoubtedly is the best material for shampooing extremely oily hair.

We are sorry to say that we are unable to give detailed formulas or to outline the best method of face bleaching. So far as we are aware, most of the face-bleaches marketed contain corrosive sublimate as the principal ingredient. Here is a typical formula:

Mercury bichloride	gr. 1
Emulsion of bitter almond	ozs. 12
Tincture of benzoin	dr. 1

The mercury bichloride is dissolved in the emulsion and the solution gradually added to the tincture. The preparation does not keep well and should be marketed in small opaque vials, with a shake-label. Other bleaches contain from 1-2 to 1 grain of corrosive sublimate to the fluid ounce.

You will find all the formulas you desire in "The Modern Formulary," by W. L. Cummings (price $1.50); "Secrets of Specialists," by Covey; "The Standard Formulary" (G. P. Engelhart & Co., Chicago); and "Fenners' Formulary." The latter is a most excellent and exhaustive work, containing about 1000 pages; the price is $6.00. Joseph's "Handbook of Cosmetics" ($1.00) may meet your requirements. We would also call your attention to the series of articles on "Cosmetic Surgery" by R. St. John Perry, now appearing in CLINICAL MEDICINE.

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QUERY 6074.—"Silver Nitrate Cure for the Smoking-Habit." W. T. C., North Dakota, has a patient who wants to have silver nitrate used to cure him of the cigarette-habit, and our correspondent requests detailed information about this treatment.

It is being widely claimed that a 1- or 2-percent solution of silver nitrate used locally constitutes an effective treatment of the tobacco-habit. If for a time the mouth is regularly rinsed with this solution, tobacco becomes extremely objectionable, and we believe that a number of young men addicted to the use of cigarettes have been cured in this way. However, the solution must be used to a purpose, but individuals who do not really earnestly desire to relinquish their tobacco, cigar or cigarette, will conveniently "forget" to rinse the mouth as often as should be, and, so, are not benefited.

In his own practice, this writer found it desirable to keep the mouth and fauces slightly dry for several days by means of atropine, and to instruct the patient, whenever he feels the desire to smoke or before he does smoke (he is bound to do so), to rinse his mouth with the silver solution mentioned. If thereafter he does "light up," he very soon will quit in disgust. If, in addition, an open bowel is maintained for a few days and the patient given a good bitter tonic, he should not find it difficult to stop smoking. Naturally, however, if after a few weeks' abstinence he starts to smoke again, the desire soon will become as strong as it was before.

In this connection, the answer to Query 5644, which recently appeared in CLINICAL MEDICINE, may be read with advantage.

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QUERY 6075.—"Interesting Case of Major Hysteria." S. O. C., Pennsylvania, submits the following data and requests suggestions as to treatment. The patient is an unmarried woman of 22 years, who has had all the ordinary diseases of childhood, fourteen years ago had typhoid fever, and nine years ago had diphtheria. Her family history is good.

In January, 1914, the patient felt an itching on the upper lip and scratched it. Later, a sore formed, but after a week this healed. A few days after that, a feeling of numbness developed on the right side of the body, which progressed, so that by the tenth day she had lost all feeling on that side, including that side of the head, neck, trunk, and extremities. She did feel extreme heat and cold. There was no motor impairment, save a slight incoordination of the muscles. After six weeks of treatment, the patient gradually improved. until now she presents the following clinical picture.

The right side of the head is devoid of sensation and "feels like a board." Both pupils react to accommodation and light, but the patient speaks of a "feeling of weight" somewhere along the optic tract when she elevates the eyes, and it is referred to the occiput. The tongue deviates to the right side. The patella reflex on the right side is exaggerated. When the eyes are closed and the patient is standing erect, balance is maintained with difficulty and she is unable to place her index-finger on the tip of the nose at the

first effort, but has to "feel for it." The entire right side of the body constantly feels cold. There is no muscular atrophy or motor impairment, the disturbance being only tactile and thermal. On the right side of the head, at a point corresponding to the Rolandic fissure, is an extremely "tender spot," the tenderness gradually fading away from this point. She complains of "fulness in the head" all the time and of a sense of weight in the region of that tender spot. The patient's memory is good; she does not recollect ever having had a blow on the head or a fall. There is no syphilis or tuberculosis in the family.

For five weeks, the head and the sides felt better following the administration of a saturated solution of potassium iodide and giving massage, but now she is losing ground again and complains of feeling about the same as she did when this treatment was instituted about six weeks ago.

No doubt, doctor, you remember the story of the old farmer who, when he saw the giraffe in the circus, turned to his son and said, "There ain't no such animal as that." The story applies to this case, because it would be impossible for any known organic lesion to produce the symptoms presented by this patient. As Uncle Hiram would put it: "There ain't no such disease." Consequently, we are convinced that you are dealing with a major hysteria, and that examination of the ocular fundus and tests of the visual field will prove the correctness of this assumption.

It is difficult, with our limited knowledge of conditions, to discuss the entire case intelligently; it is probable, however, that for some reason the sore which appeared on the young lady's lip was regarded as a particularly dangerous lesion. Diplomatic questioning as to her procedure previous to the appearance of this sore might elicit some enlightening information.

It is impossible to assume any other than a psychic connection between the sore and the chain of symptoms developing after its disappearance. We must regard the lesion on the lip either as psychically or as physically causative, or ignore it altogether. Physically causative of numbness on the right side of the body, and all the rest, the wound could not be. However, psychically causative, if we assume that the young woman believed it to be something it was not, it might have been; and a major hysteria based on this fact might present all the remarkable conditions you describe.

It is more than probable that a brilliant cure can be obtained in this case by the use of strong suggestion and the application of the faradic or high-frequency current. Thus, for instance, after a thorough examination, you can assure her that at last you have discovered the cause of the trouble and can correct it very promptly by the application of proper electrical currents, that the peculiar sensations on the right side of her head will disappear under the application of electrodes, and other such like suggestion. Then apply one pole to the occiput and the other to the base of the spine. Use sufficiently strong current to be distinctly uncomfortable. If the suggestion has been sufficiently strong, probably you will find, upon the removal of the electrodes, that the symptoms have disappeared. At the next sitting you can remove another disability, and, so on until normal conditions are reestablished.

It would be well of course during this period to eliminate thoroughly and to administer the triple arsenates with nuclein or the trivalerates. Lecithin might prove beneficial.

In this connection, we would call your attention to the very exhaustive discussion of hysteria in Church's translation of Salinger's "Diseases of the Nervous System," Modern Clinical Medicine Series, published by Appleton.

You should have no difficulty (if our diagnosis is correct) in discovering the hysterical zones; and as such we regard the tender spot on the right side of her head.

It might be well to make a very thorough examination of the patient's pelvic organs. And, we repeat, if at all possible get the young woman's full confidence and find out something about occurrences immediately prior to the appearance of the sore on the lip. We are particularly interested in this case, doctor, and trust you will keep us fully informed.

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QUERY 6076.—"Gallstones Made to Order." J. D., Illinois, and several other correspondents have sent in concretions, that are supposed to be "gallstones," voided by their patients after taking certain advertised nostrums guaranteed to "cure" cholelithiasis. One physician wants to know why, if the "quack" can remove gallstones by hundreds with infinite ease, the profession impotently continues to advise operation. Another, more astute, questions whether the "greasy masses" really are gallstones, and continues: "I find that everyone who passes these bodies has been filled up with olive-oil and purged

with epsom salt. Further, I observe that the supposititious gallstones are merely greenish soapy masses, entirely unlike the real thing removed by the surgeon."

All the specimens submitted were found to be of the same character, namely, bile-stained masses of soap and fatty acids. The quack and exploiter of patent medicines always revels in the spectacular, and here he has taken full advantage of the fact that large doses of oil invariably cause the dejection of such hard masses, which, naturally, by laymen are supposed to be gallstones.

Fruitola and similar nostrums have been analyzed and are known to be flavored olive-oil. The purgative powders accompanying the nostrum are either seidlitz powders or rochelle salt disguised by the addition of compound licorice powder. The socalled gallstones voided generally are of a grayish-green color and of the consistency of soft wax, but on standing for several days they separate into a dark oil and an amorphous gray substance. Analysis shows these concretions to consist of a mixture of fatty acids and soaps, produced by the action of the intestinal fluids upon the large quantities of oil ingested.

We suggest that our correspondents procure from the American Medical Association (535 Dearborn Street, Chicago) a copy of "Nostrums and Quackery" and read to their patients or show them the exposure of these nostrums, as found on pages 437 to 443.

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QUERY 6077.—"Sequels of Yellow-Fever." M. L. W., Kentucky, writes: "What sequels would be likely to follow a severe attack of yellow-fever? My books on practice are silent on this phase. I am treating a patient who had an attack while serving in the navy and now wants a pension. He is afflicted with constipation, indigestion, loss of memory, and other troubles, but I cannot find out whether these are the usual consequences."

We must confess that the somewhat extensive literature at our disposal also does not treat with any degree of definiteness of the possible sequels of the disease in question. There is this to say, though, those victims who recover ordinarily are those seen and treated early in the attack. Cases of continued fever and in which there is no distinct remission by the third or fourth day usually terminate fatally regardless of treatment. In the more severe types, there remains little time for action, and from the very beginning signs point plainly to their fatal termination.

The anatomical lesions resultant from an intense intoxication are of such a degree of severity as soon to be beyond repair, hepatic degeneration being as intense and general as in cases of acute yellow atrophy or of phosphorus-poisoning. In addition, the kidneys may be the seat of a marked parenchymatous nephritis.

From these considerations, it is quite evident that patients recovering from a prolonged attack of yellow-fever may suffer from renal, hepatic or hematinic disorders. Moreover, it must not be forgotten that not infrequently a malarial infection coexists with the disease. Guiteras, Agramonte, and other writers state that they have observed the malarial parasite quite often in the blood of yellow-fever patients; not infrequently that complication materially retards recovery. However, as we know, in ordinary cases, when promptly and properly treated, the period of convalescence is extremely short, it being not unusual to see men about their daily work two weeks after the initial chill.

In protracted cases, especially if patients have been profoundly debilitated, more or less disability may exist for months. Each case, however, must be considered and treated on its own merits; but, as a rule, regulation of the diet and the prescribing of tonics prove sufficient to insure ultimate recovery.

Where renal and hepatic lesions are severe, death generally occurs within a few months, the causes mostly mentioned being atrophy of the liver (chronic hepatitis), parenchymatous nephritis or progressive anemia.